

# COMMERCIAL CAR JOURNAL

THE MAGAZINE FOR FLEET OPERATORS  
JANUARY 1946



## To fit your hauling needs . . . STANDARDIZE ON

Whether you operate two trucks or two hundred it pays to standardize on Reo. For here is an unusually wide range of engines, wheelbases, capacities, axle ratios and special equipment—plus outstanding features of design and construction—which provide the capacity, power and performance to fit your hauling needs. Since 1904, Reo has

been noted for economy, dependability, long life. It faces today's great transportation needs with equipment built for today. This is now being delivered through a nation-wide sales and service organization of factory-operated branches, distributors and dealers. Ask your Reo dealer for details.

REO MOTORS, INC., Lansing 20, Mich.

**REO**  
1904 • AMERICA'S TOUGHEST TRUCK • 1946  
**REO**



## It's a masterpiece, too... and Job-Rated

THE driver who steps from that trim, good-looking truck has reason for satisfaction. He's driving the sweetest-running, smoothest-riding truck he ever stepped into . . . a *masterpiece*.

He's driving a truck that Dodge truck engineers took pride in designing . . . and that Dodge truck craftsmen took pride in building.

There's no substitute for years of truck-building experience. So it's difficult to improve on the precise workmanship and quality that have always been major reasons for the economy, dependability and long life of Dodge trucks.

But over and above quality materials and precision workmanship, your Dodge truck will be *Job-Rated* . . . engineered and built to fit your job! You get greater economy when your truck engine is rated for your loads. You get greater efficiency and longer life when *every* unit, from engine to rear axle, is *Job-Rated*.

BUY VICTORY BONDS

R.G.

So when you buy new trucks, standardize on Dodge *Job-Rated* trucks . . . trucks whose modern design and attractive appearance will reflect the character and prestige of your business.

See your Dodge dealer now for trucks that will save money *every day, every mile* . . . and for *more miles, too!*

DODGE DIVISION OF CHRYSLER CORPORATION

**Truck Parts Are Important**—Owners tell us they'll long remember the quick wartime availability of Dodge truck parts. Parts when you need them: that's the Dodge way . . . your protection against costly delay.

REMEMBER THURSDAY NIGHT! THE MUSIC OF  
ANDRE KOSTELANETZ AND THE MUSICAL WORLD'S MOST  
POPULAR STARS . . . THURSDAYS, C. B. S., 9 P. M., E. T.

**DODGE** *Job Rated* **TRUCKS**  
FIT THE JOB . . . LAST LONGER

# COMMERCIAL CAR JOURNAL

with which is combined *Operation & Maintenance*

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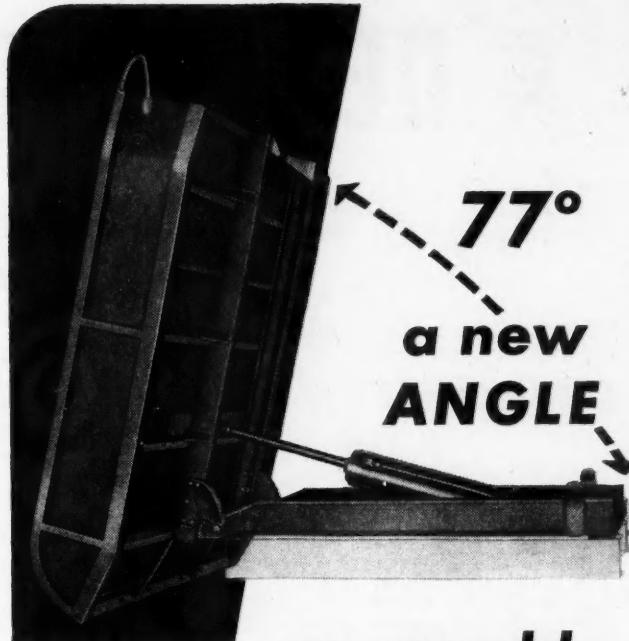
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on an old  
**PROBLEM**

Handling wet, sticky loads and handling them fast is the job that St. Paul HI-DUMPERS are made for.

77° dumping angle gives clean, fast disposal of ores, peat, wet clay, garbage, etc.

St. Paul's line of HI-DUMPERS includes light and heavy-duty models for all truck sizes with dump bodies of box, scoop-end or garbage styles.



• Please write for  
illustrated folders

**ST. PAUL HYDRAULIC HOIST COMPANY**

2207 University Avenue S. E.

MINNEAPOLIS 14, MINNESOTA

# A DEPARTMENT STORE OF *Trucking*

**WITH INTERNATIONAL TRUCKS PREDOMINANT  
ON THE HEAVY-DUTY JOBS**

Here's a gasoline hauling job Willett does with KR-11 Internationals from refineries in East Chicago, Indiana, to bulk plants in Chicago and Northern Illinois.

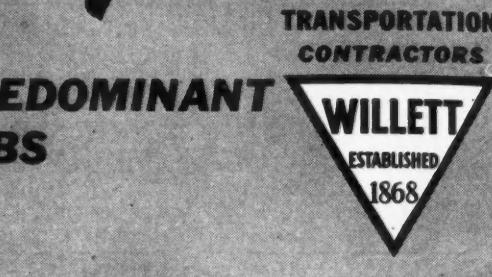


K-8 International with 22-foot semi-trailer that hauls general freight from the Pennsylvania Depot in Chicago to East Chicago and Indiana Harbor, Indiana. On the return run this truck hauls steel castings from foundries for delivery in Chicago.

Steel deliveries from steel-service plant to users is another contract hauling job Willett does. Deliveries must be made quickly, with the trucks usually carrying a variety of orders and operating in city traffic. The truck in the picture is a K-8 International.



International-powered trains like this one are operated by Willett to haul milk from county collection depots to Chicago plants for pasteurizing. Three such trains, all International-powered, are operated.



EVERYTHING in dry freight from a dining-room chair to a ten-ton cannon; everything in bulk liquids including milk, salad oil, tar and gasoline! That's the transportation job the Willett Company does with more than 1,000 pieces of equipment and 915 employees.

A book would be required to describe the operation. Howard Willett, Jr., Vice President, says his company is a department store of trucking. Three features are outstanding. 1. The astonishing number of different products hauled and the many varieties of transportation service furnished. 2. The flexibility of the operation. 3. The dispatching system that keeps the management's fingers on every truck all the time.

Here are a few examples of Willett transport: Freight from depots to consignees and other depots; steel from warehouses to customers; food from commissaries to restaurants; soap from factory to retailers; flour from mill to bakeries; hardware from wholesaler to retailer; crippled children from homes to schools. The list could be carried on and on.

In Chicago, Willett handles pick-ups and deliveries from about 10,000 customers a day. Willett hauls about 18 per cent of the gasoline and other petroleum products used in the state. And Willett operates a truck-leasing business through a wholly owned subsidiary.

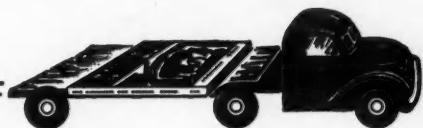
For its heavy-duty jobs, Willett uses International Trucks predominantly. This use is based on the same performance that has earned for Internationals their outstanding record in the heavy-duty field—a record of more heavy-duty International Trucks purchased for civilian use in the last fourteen years than any other make.

**INTERNATIONAL HARVESTER COMPANY**  
180 North Michigan Avenue Chicago 1, Illinois

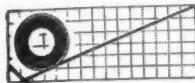


## **INTERNATIONAL Trucks**

## This Month's PAYLOAD



### • Fleet's Tire Program Ups Mileage 126%



If a 126 per cent tire mileage gain seems a bit on the "colossal" side, you'll find that a peak of 240 per cent was reached. There's so much meat to the tire PM program that we have to run it in two instalments. This is No. 1.

Page 40

### • Fleet's New Shop Plans Set Stage for Efficiency



In an area of only 35x105 ft., a dairy will provide maintenance for 65 vehicles—everything from front-end alignment to body work. Such streamlining calls for an efficient shop and a super system—the article describes them.

Page 44

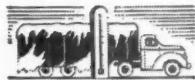
### • Night Work, Wage Rate—Fleet Shop Problems



This CCJ fleet survey shows good mechanics still are scarce; those around don't want night work, are not satisfied with rates fleets pay. Survey also reveals causes of labor turnover, offers suggestions on the "helper" angle.

Page 50

### • Fleet-Designed Reefers Pass 130 Deg. Road Tests



Temperatures a lot less than 130 deg. will spoil perishable cargo, but any reefer that delivers the goods under such extreme conditions is worth looking into. Here's a good inside view with pictures and detailed descriptive data.

Page 52

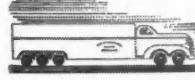
### • Fruehauf Announces New Gravity Torsion Bar Suspension



Road tests for almost two years have established advantages for this new type of springing. Among those mentioned in this article are: Greatly increased tire life, reduction in maintenance, greater safety—there are others.

Page 56

### • New Twin-Engine Truck Has Tandem Front



Meet Eisenhauer, the newest in trucks: A 16-wheeler with two engines, four front wheels, laterally shifting rear axles and compensating spring suspension. It's made from two 1 1/2-tonners that add up to a 20-ton payload job.

Page 62

... AND

in answer to demands of fleet readers, CCJ Truck Specifications Table will be published every month, beginning with this issue . . . Also beginning with this issue, CCJ is inaugurating a series of interviews with important personages in the fleet maintenance business. Heading the list is the man behind the gun—the grease gun—who tells all in "A 'Greasepert' Bares His Soul," Page 43 . . . On the confidential side, "Ears to the Ground" department, Page 38, is on the beam with some fine snooping and scooping . . . Getting down to figures, CCJ's statistician points out in "1945 Truck Registrations Increase 120,000 Units", Page 72, that last year California netted the biggest gain in trucks and Michigan the biggest loss . . . The boys are still talking about J. Willard Lord's October article on standardized instruction cards in "Letters from Readers," Page 36 . . . Dodge has produced a civilian version of the four-wheel military truck, a description of which, with illustrations, will be found on Page 65 . . . For clarification of "CC" ratings or other truck and tire problems turn to "Washington Runaround," Page 88 . . . When you're in an intellectual mood, look up the new batch of Quiz Cartoons that begin on Page 128 . . . To find the remaining features just turn back to Page 33.



## ... on Standardized Service Instruction Cards

### An Advanced Step

EDITOR, COMMERCIAL CAR JOURNAL,  
DEAR SIR:

We believe the proposed standard service instruction cards as described by J. Willard Lord, chairman, SAE Subcommittee of Standard Service Instruction, in the October, 1945, issue is unquestionably the preferable way of publishing service instructions and, as such, represents an advanced step in making available to maintenance personnel the manufacturers' published service instructions.

We believe there is no question but that the mechanic will use such instruction cards more than he has ever used service manuals as we know them today.

It is our belief that fleet operators, large and small, will gladly pay a nominal sum for the Standardized Instruction Cards and for a suitable metal box to keep them in in preference to being given a manual which he feels is inadequate for the work it is supposed to do.

The 14x18-in. card is somewhat larger than we like to see but we believe the average mechanic would prefer the larger size in order that drawings and photographic reproductions can be used where needed. In this respect, we cannot forget that these proposed Standard Service Instruction Cards are prepared for the mechanic primarily and only secondarily for the man who sits at a desk in a well illuminated room.

JUDSON D. MUNSELL, JR.,  
Mgr., Field Engineering,  
Kendall Refining Co.,  
Bradford, Pa.

### A Very Good Idea

DEAR SIR:

I think you have a good idea here. I do think the 14x18 cards are too large. I think 8x12 cards could serve the purpose and think fleet operators would be glad to stand the extra cost for these cards. They know that they would profit by this plan in the time that could be saved.

F. W. GREEN,  
Cook & Brown Lime Co.,  
Oshkosh, Wis.

### Thinks That, in Time, Men Would Rather Have Cards

DEAR SIR:

I think an orderly, well kept and easy accessible card system should, when perfected, replace the service manual. In the beginning, both would probably come in handy. When brought up to date and fully equipped, I think the service men will, in time, rather have the card system for ready reference. I can't see why the fleet owners wouldn't be willing to pay any reasonable amount asked. Because the system will pay for its cost very soon and many many times. As to size, 14x18 sounds rather large. If, however, it should require this size to make the subject clearer or the pictures large enough, then I say 14x18. Otherwise, it seems to me that 12x14, fraction more or less, should be used.

W. M. HEIL,  
Mechanic,  
Gulf Refining Co.,  
Louisville, Ky.

### The Finest Contribution

DEAR SIR:

I think the Standard Service Instructions as proposed by the SAE-ODT Committee is the finest contribution that has been presented to automobile and truck maintenance service that I have ever seen. In the first place, it should be made mandatory by service managers for their mechanics to use a source of information such as this in all their work to eliminate guesswork, save time and promote efficiency. Too many mechanics seem to labor under the impression that to be caught reading a service manual brands them as being unskilled and as not knowing their job.

I have yet to see the mechanic who can remember specifications, dimensions, clearances, preloads and many other procedures, peculiar to various vehicles, necessary to accomplish a workmanship like job. For myself, I would rather read about and diagnose the problem for 30 minutes, then work an hour to accomplish a good job than to guess for two or three hours and turn out an unsatisfactory one.

The departmentized card system would lend flexibility to its use by several men at one time performing operations on different units of the vehicle where a single volume would not. Where a service is departmentized into specific services such as Brakes, Front Wheel Alignment, Motor Tune Up, etc., the Standardized Service Instructions would again lend flexibility by having the particular indexed cards in the department



# from READERS

rather than to have to refer to a master service manual at a remote control point.

The size of the proposed card, 14x18, is rather large and would be easily broken or damaged if used promiscuously or laid around on a work bench. Yet its size lends value to it if used properly for what it is: a chart. If made available to me, I would contrive a rack or board receptacle onto which the particular card covering the job at hand could be placed at a proper location for easy reading and good visibility. In a well organized shop where each mechanic has individual work benches, this could be attractively accomplished by an ingenious shop foreman.

Most any price within reason would be money well spent for such information, when taking into consideration the benefits that could be derived from its proper use.

I hope to see it made available soon and would like to have such sections as would be applicable to the vehicles under my supervision.

ALBERT O. WALKER,  
State Supervising Mechanic,  
U. S. Dept. of Agriculture,  
Baton Rouge, La.

## Not Much Improvement

DEAR SIR:

In regard to your proposed card system, I do not see much improvement over our present manuals which I think, if they are used by the mechanics as should be, seem to cover each make very completely.

The only thing to do is put in the manuals some way to get to the units for repairs and regular adjustments. They explain very clearly how and

when to fix certain things but, on all new trucks and cars, some units are impossible to get to. Tell the manufacturers to put this information on the front page of 1946 manuals and we won't need no kind of a card system.

A. E. PETERSON,  
Mechanic,  
Gulf Refining Co.,  
Louisville, Ky.

## Cards for the Shop, Manual for the Driver

DEAR SIR:

I personally would prefer the 14x18 card that you describe in article in October issue of the JOURNAL, one that can be pulled out for quick reference and additional data added when necessary.

As for the old style manuals, they should be all right to give to a driver for minor repair on the road or as something to read in his spare time.

As for cost, I'm sure if the company thought the price too high, most shop foremen would pay for it themselves.

HAROLD SEIDEN, Foreman,  
Colony Fuel Oil Co.,  
Brooklyn, N. Y.

## All He Gets Is "Little Book Telling Little Things"

DEAR SIR:

I am sure the card system would be the best set-up in our shop and I think the mechanics would be willing to pay a small charge for these cards—although I believe the shop should furnish most of them, as it is to their benefit.

We have to beg for any manuals we get and are lucky to get them. On some of our equipment we just can't

get any real service manuals. All we get is a little book telling some little things like how to clean air cleaners or set the brakes or change a tire.

We need instruction cards.

G. F. MUELLER, Shop Foreman,  
St. Louis County Garage,  
Hibbing, Minn.

## Consensus Favorable

DEAR SIR:

We have used manuals from White, International and Ford companies, but with not too much success.

We have talked your proposed card system over with our mechanics and they think it would be of help to them. Our trouble before with manuals was that so many different models were shown and hardly ever the one you had need of.

We think the 14x18 card would be right, and that most operators would gladly stand part of the expense.

W. L. LILLIE, Del. Supt.,  
The LaSalle & Koch Co.,  
Toledo, Ohio

## Favors Cards but Suggests Hinge to Permit Folding

DEAR SIR:

One of our major jobs is to get the mechanic to use instruction manuals and other information available to him.

I think the proposed Standard Service Instruction Card is a big advance and a much better way of publishing service instructions for use by the mechanics.

In my opinion, fleet mechanics would be much more likely to use the instruction cards than service manuals due to the make-up and sim-

(TURN TO PAGE 108, PLEASE)

# ears to the GROUND



Confidential agents of this department, free of censor's wartime wax, are on the loose again listening, peeping and reporting. Throw away your radar set and keep tuned to this wavelength for up and coming automotive developments

## L.W.L.P.C.M.

It seems to be an open secret in Detroit that both Ford and Chevrolet are working on light-weight, low-priced cars. These will be welcomed, undoubtedly, by a great many fleet operators. Naturally at this stage of the development of these cars there is nothing official that can be reported. Everything is very much hush-hush. But there are plenty of rumors, and for whatever they are worth, here are some of the more significant:

### Rumors Itemized

Chevrolet rumors include (1) formation of an engineering organization, complete with cost accounting and all other allied activities that go to make up a well-rounded, major project; (2) reports that a frameless chassis is being considered. The hottest Ford rumor has it that the light, low-priced job will have a six-cylinder engine.

### Bonded Stuff Uncorked

Last month, under the caption "Glued Brake Linings," this department reported that a major producer would soon announce the use of a new method of fastening brake lining to brake shoes. The announcement is so well along that no harm can some of telling you now that the producer who will help operators get more life out of brake linings is Dodge. Called cycle-welding, early reports indicated this method of bonding would be introduced only on Dodge 1½-ton trucks but latest reports say it will be the ½-ton model. It is expected that the process will be extended later to passenger cars.

### Several Federals

Federal Motor Truck is all set to announce details of new 13,500-lb. and 30,000-lb. vehicles as soon as government-approved prices have been established.

### Pop Goes the Diesel

It has been no secret in the industry that Continental has been at work on a line of automotive diesel engines. Public

announcement of the line is expected sometime in February. But don't count it a certainty.

### Add Synchronized Transmissions

A major transmission manufacturer informs this department that by the last half of 1946 several truck manufacturers will be using synchronized transmissions. Details of the transmissions, however, will be available during the first half of this year. Units will be available in a larger range of sizes than before the war.

### Nash Joins the Family

Nash plans to re-enter the truck field with three models, details of which will be announced next summer, probably July. The new commercial line, first to be offered by Nash since 1929, will consist of ½-ton, ¾-ton and 1½-ton models.

### Automatic Antics

Piecing together things learned from various sources, our Detroit sleuth finds there is considerable activity on the development and testing of automatic transmissions throughout the industry. He has sniffed out the fact that Studebaker, Nash and Ford are playing with automatic units. The presumption is that the central figure in this picture is Borg-Warner, which has supplied transmissions to all of these manufacturers.

### White Aims for 18,000

White has placed about 18,000 trucks on the schedule for 1946. This compares with a previous annual production peak of 9000.

### New Braking System

Chrysler will install an improved hydraulic braking system on all its 1946 cars. Tests are said to show an increase in

braking effectiveness of 33 to 40 per cent, and a reduction in foot pedal effort from 25 to 30 per cent. Experimental tests on taxicab fleets are said to show longer brake lining life, in some cases double the life for conventional brake systems. Features claimed are increased power for sustained braking on steep grades and for emergency stops, quick responsiveness to pedal pressure and release to provide better control in traffic.

### Clutch Capers

Lipe-Rollway is working on several items of interest to fleetmen. One of these is a new 17-in. toggle-type clutch which is being tested on a 20-ton capacity ore-carrying truck. The other is an automotive-type clutch, used without a housing, similar in design to the clutches produced for tanks during the war. The pressure plate of this unit can be used on both faces. The new clutch is being groomed for use first on tractors. It is expected to be available for truck installation in an over-center model to be produced in sizes ranging from 5 in. to 11 in.

### Big Three At 'Em Bomb

One of the Big Three will have a 120-hp. engine ready for use in 1947 models. The increase in horsepower will be achieved principally by lengthening the stroke. It is, of course, intended primarily for a passenger car but the horsepower makes it logical to speculate that the engine may provide the power for a truck with a higher gross vehicle weight rating than has been customary with this producer. This same outfit will have an improved 6-cylinder engine developing 95 hp.

### Suspension Animation

One popular-priced car is having its suspension system revamped. Engineering of torsion bar suspension has been worked out but since the whole chassis design will have to be changed, there is some doubt that it will be ready for 1947 models.

(TURN TO PAGE 87, PLEASE)



## EDITORIAL

### 1. Railroads Cry Subsidy Again . . . but. 2. Who's Subsidized in Kentucky? 3. Calling Congress

#### Railroads Cry Subsidy Again

THE railroads ceaselessly complain, in spite of accumulated evidence to the contrary, that motor trucks enjoy an unfair competitive advantage. Their spokesmen mount soapboxes periodically and froth at the mouth about public subsidies accorded highway transportation. The late Joseph B. Eastman, as Federal Coordinator of Transportation, went into that subject thoroughly and exhaustively and arrived at the conclusion that motor trucks were not subsidized, that, in fact, some sizes of motor trucks were paying more than their fair share of highway costs.

The railroads, naturally, did not agree with Mr. Eastman's findings. But during his lifetime they never made the claims which they now make. They assert that the subsidy study was not an Eastman' study insinuating that the conclusions did not represent Mr. Eastman's thinking and belief. One has only to read Mr. Eastman's "Foreword" in the published report to become convinced that, while assigning credit for the work to his co-workers, he assumed full responsibility for the report. Moreover, Mr. Eastman left no doubt of where he stood in regard to the contentions of railroads when he wrote:

"I may add that the railroads have had the opportunity to express to me, both orally and in writing, their views on the highway carriers. Their contentions impress me as being carried to extreme limits."

#### Who's Subsidized in Kentucky?

AND that brings us around to the railroads in the sovereign state of Kentucky, the home of beautiful women, fast horses and underweight trucks.

Here is a state that has the lowest gross vehicle weight limit of any state in the Union. It is 28,000 lb. This low gross has been perpetuated by the effectiveness of the railroad lobby in the Kentucky State Legislature.

Judged by the weight standards prevailing in surrounding states, the railroads in Kentucky are enjoying what amounts to a public subsidy. The railroads in Indiana compete against a truck gross of over 53,000. The railroads in Illinois compete against a truck gross of 72,000, in Ohio against 69,000, and in Tennessee—which got religion during the war—against 42,000 lb. gross.

Judged by the weight standard which Kentucky adopted as a wartime emergency, the railroads of Kentucky are unfairly subsidized. They compete in peacetime against a 28,000 lb. truck gross whereas in wartime the gross was 40,000 lb.

The Kentucky Legislature meets in regular session this year. It is time Kentuckians realize that they are penalizing themselves to subsidize the railroads. It is time to stomp out the snake in the Blue Grass.

#### Calling Congress

CONGRESSIONAL committees do a lot of investigating but it is perhaps too much to hope that Con-

gress appoint a Congressional committee to investigate a Congressional committee.

Without any authority from Congress—because the resolution requesting such authority has not been acted upon — a subcommittee of the House Interstate & Foreign Commerce Committee, seemingly because of the dominating influence of its chairman, Rep. Lea of California, is investigating transportation matters with emphasis on the need for integrating the various forms of transportation, i.e., as competitors view it, permitting railroads to acquire a monopoly. Here is an investigation that was instigated by a railroad-dominated organization, and which is being advanced by railroad money.

The Lea Committee has spent public funds without authority on the prospect, apparently, that authority is jus a matter of time and that reimbursement will follow. But how much is the railroad-dominated organization spending? Presumably some organization other than the committee is spending money mailing out pamphlets, letters and questionnaires. How else can one account for the fact that many motor carriers have received three and four separate mailings of committee material, when the committee itself made only one mailing?

Chairman Lea undoubtedly is motivated by public interest, but there is a slight odor about the entire investigation that may spoil his committee's findings.

(TURN TO PAGE 166, PLEASE)

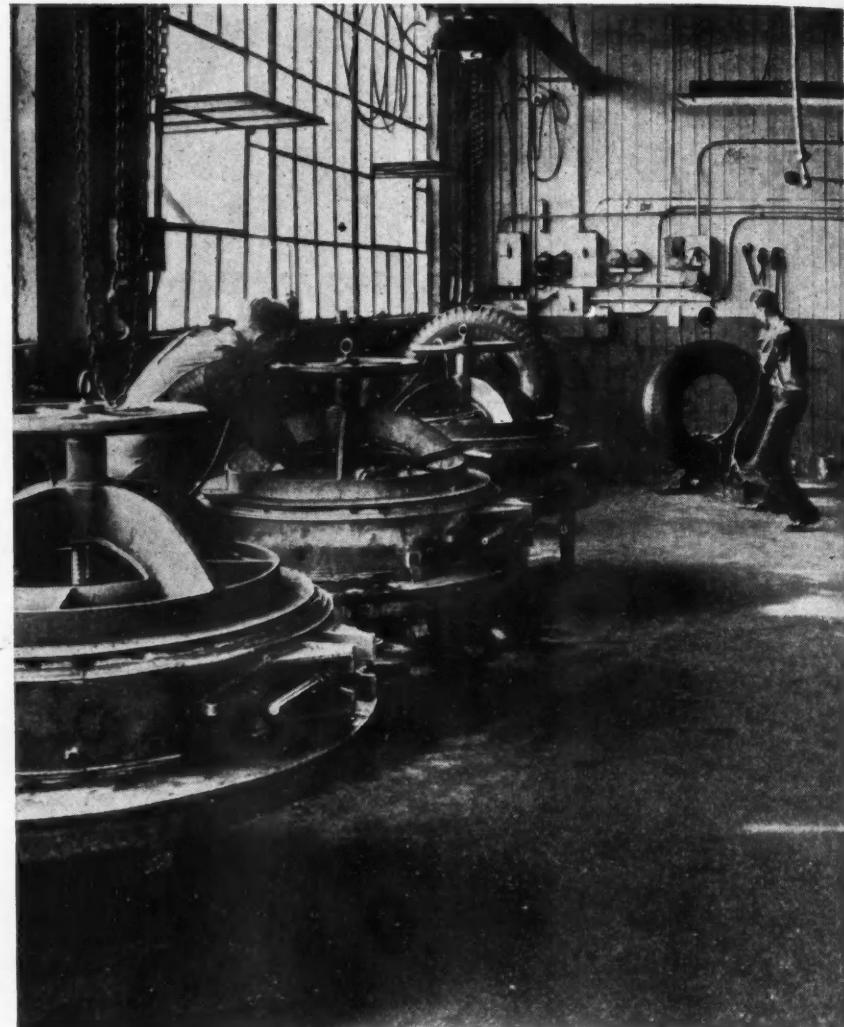
by WARREN E. CRANE

**MARKINGS IDENTIFY  
TYPE OF SERVICE**

"The tire department maintains a system of grooved lines under the brand number that indicates the condition of the repaired tire so that it can be placed properly to obtain the maximum service. Tires on which no grooved line appears under the brand number are perfect carcasses and should be used on drive wheels.

"Tires on which one grooved line appears under the brand number should be used on trailers and six-wheeler drive wheels, while those with two grooved lines should be used on the last two axles of six-wheel trailers.

"According to the company code, tires branded RO indicate that they must be worn out and not removed for further repair or recaps. Tires of this class are to be used on the last two axles of six-wheel trailers only."



## **Fleet's Tire Program**

### **Ups Mileage 126%**

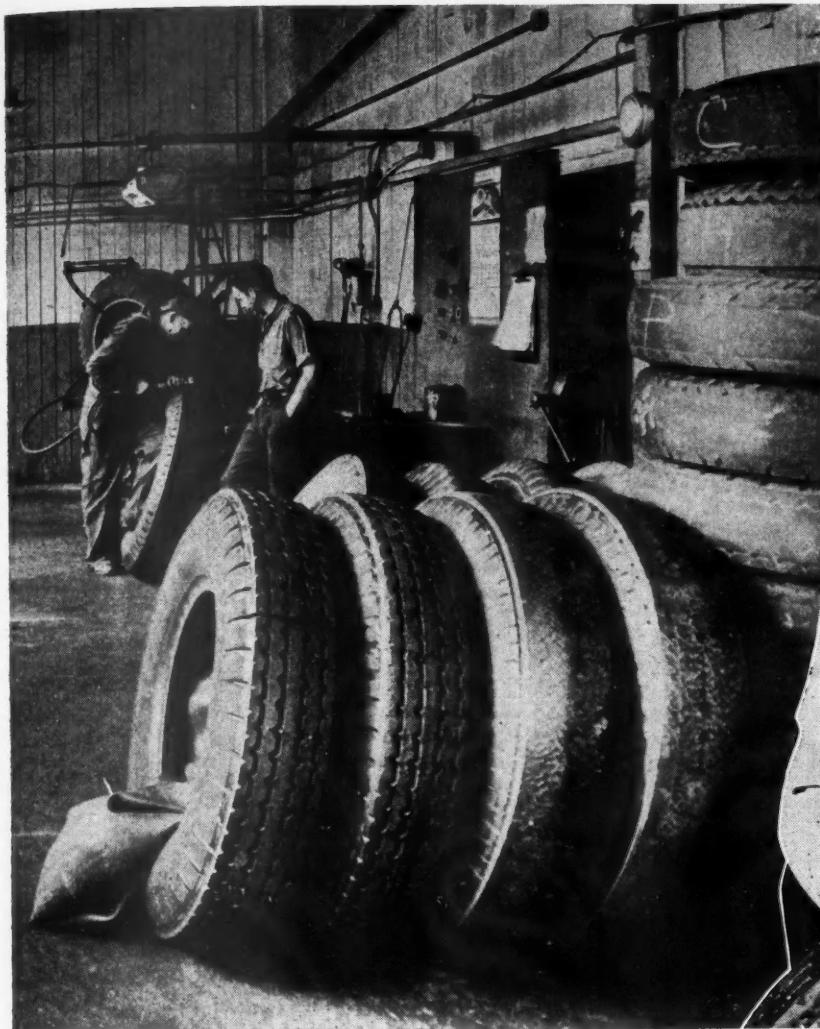
**Starting with a 30,000-mile average before  
present program, average jumps to 102,000  
miles, dropping to 68,000 with war tires.**

**Number of recappable tires grows steadily**



**A** COMPREHENSIVE program of tire conservation is being carried out successfully by Consolidated Freightways at Portland, Ore. It is one of the most rapidly growing common carriers in the United States and is said to cover a larger area than any other independent motor freight line in the world with its 829 units. It serves 11 western states comprising a larger territory than any existing railway system and reaches from Portland, Ore. and Seattle, Wash. on the West to Chicago on the East, and from Great Falls, Mont. on the North to Oakland and the Bay region of California on the South. It has over 2000 employees and does a gross annual business of eight million dollars.

The far-reaching Consolidated Freightways coverage of the north-



*Left. Vulcanizing shop of Consolidated Freightways' Seattle tire reconditioning plant. Below, Ray Kupp, tire maintenance engineer, using gage to determine approximate tire life expectancy*



western section of the United States is greater than that of any transportation agency except Railway Express. It serves all principal points including such key cities as Portland, Seattle, San Francisco, Oakland, Spokane, Minneapolis, Salt Lake, Chicago, by direct service. It joins these big distributing centers with hosts of small cities and villages. On its return trips it picks up products from the mighty forests, rivers, farmlands and mines and transports them into ports, processing plants and warehouses of the big cities. The company's routes cover 12,000 miles of highways, making it the world's longest freight line.

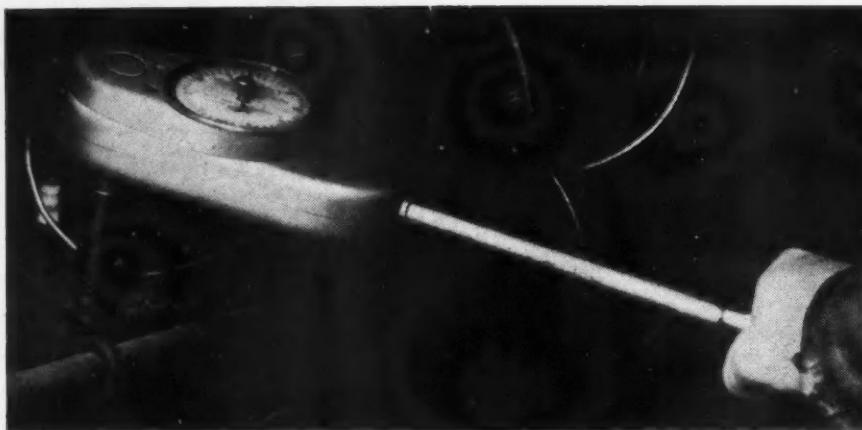
#### Average Tire Mileage Reaches 102,000

ONE of the most important single items in the efficient operation of the company has been its handling of the tire situation. Let us examine this department in detail as it has played a strong part in the financial success of the company. Ray Kupp, the tire maintenance engineer in charge, was one of the pioneers in the work of tire recapping and repairs long before World War II—in the period of 1932 and thereafter. He is now considering the problems in a time of conversion to a peacetime basis. It has been his experience that tires

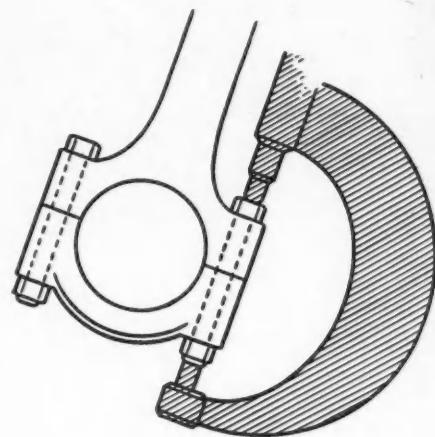
(TURN TO PAGE 234, PLEASE)



*Don Actor, Consolidated Freightways' driver using tire matching gage on the duals of his truck. Similar gages are carried in the cabs of every vehicle in the fleet*



*Left. Use of torque wrench is more accurate than "feel," but worn, damaged or dirty threads will affect amount of pull required. Below. A micrometer is used to determine tightness by measuring the bolt elongation or stretch*



## Tips on Tightening Nuts and Bolts

**In addition to "feel" and torque wrenches, tightness can be determined by bolt elongation and by manufacturers' guides**

### BASIC FACTS INCLUDED

Much valuable background information on types of nuts and bolts is given in this article, as well as tips on tightening and locking nuts for best results. At the risk of being elementary, basic facts on the design and application of threaded connections have been included.

With the information in this article the mechanic will understand the design problems of the manufacturer, and should improve his own technique of tightening and adjustment. Courtesy of the Timken-Detroit Axle Co. in providing this material is hereby acknowledged.

**Q**UITE often you can tell a good mechanic from a poor one just by the way he tightens nuts and bolts. There is a lot more to tightening threaded connections

than just grabbing a wrench and running a nut or cap screw down as far as it will go. There are no less than four methods of determining the tightness of a nut.

First and most generally used is "feel." A good mechanic knows from experience when a nut is "tight enough." This method is satisfactory in all ordinary cases—provided the right size wrench is used and the nut not "strong-armed," or the wrench pounded with a hammer, or the leverage increased by using a piece of pipe on the wrench handle.

There are many cases, however, where "feel" is not accurate enough. On bearing caps bolts or studs, cylinder head studs and many other important parts, the nuts must be drawn tight within very close limits. Even the best mechanic cannot pull up several nuts to exactly equal tightness just by "feel," so some means must be used to measure the degree of tightness accurately.

**Two Types of Torque Wrenches**  
**T**HE second means of determining tightness of nuts is the torque wrench or torque indicating wrench which measures the pounds of pull exerted. Two types are used, one of which indicates the torque being exerted, while the other can be set for any desired torque or pull, and slips when greater pull is exerted.

Slight differences in thread sizes,  
(TURN TO PAGE 236, PLEASE)

# A "GREASEPERT" Bares His Soul



*Editor's Note—CCJ tries to report everything of interest in the trucking business. In every shop there is an individual whom no one spending any time there can forget. He leaves an impression on everyone. He is the Greaseman. Without him the wheels of the trucking industry would run far less smoothly. Herewith, CCJ reports an interview with one Pete R. O'Leum, greaseman or, as he suggests, Greaspert.*

**R**EPORTER: "Mr. O'Leum our readers would like to know how you got started greasing tractors and trucks."

O'LEUM: "Well, the oily bird gets the worm, you know and I started right from the cradle. Unlike other babies, I used to cry for castor oil.



I was the first kid to shoot oil out of a water pistol instead of water, and I later found out how to make those trick buttonhole flowers squirt oil instead of water when someone smelled them. I got it all from my Grandpappy, old Mause O'Leum, who spent a lifetime collecting and squirting oil cans as a seagoing oiler. He

could play 'Oiled Folks at Home' and 'Waters of the Minnetonka' by squirting a row of oil cans, and cannily he had a can for every contingency, whether to oil an ocean liner or a rusty girdle.

"Grandpappy always claimed the wheel had been invented by an Irish ancestor of ours in the stone age, one Turalur O'Leum, a stone age mechanic, who made an evil giant known as Frig Shin so mad with his invention that he put a curse on everything that turns on an axle. And those squeaks and noises you hear in wheels to this day are the curses and teeth gratings of Frig Shin, known to us as Friction. Well, anyway, the O'Leum swore eternal enmity to the giant Frig Shin and vowed that till the crack of doom there would always be an O'Leum. To fight Frig Shin.

"So, I guess that's why I love to shoot oil and grease and when I first got a pistol grip compressed air grease gun in my hand I knew I had a fast Al shooting iron for my fight with Frig Shin. And I'll draw grease guns and shoot it out squirt for squirt with any greaser from the Panhandle or West of the Pecos to show how we O'Leums can dish it out."

REPORTER: "Now Mr. O'Leum there's nothing personal in what I'm going to ask you next—it's just in the line of duty, you understand—but here's a list of beliefs, false I am sure, that I find pretty common in shops regarding the habits of greasemen:

"That the first thing greasemen grease is the steering wheel, door handles, and seats of tractors, leaving



old grease rags on the seats, but saving the oldest and dirtiest rags for the office desk and chairs;

"That greasemen always have a cord on their grease gun twice as long as necessary and always connect it at the extreme end of the shop furthest away from the tractor being greased, first however making a loop through every drop cord on the shop floor;

"That greasemen always fill their guns in the middle of the shop floor before going home evenings, leaving everything there for the night mechanics; excepting the last day of the week when the gun is always left empty for the day crew to fill the next day;

"That greasemen never grease their own guns, especially the wheels and when moved by any one except the greaseman refuse to roll and have to be lifted bodily, when the handles and cover always come off;

"That upon draining oil from a tractor the pan is always left under the nearest fender on which a mechanic is working for him to step down into;

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## Fleet's New Shop Plans Set Stage for Efficiency

**A** NEW house, a new broom and all that goes with it will soon be ours as we turn our backs on the old shop to accept the new.

The new house is in the various stages of blueprint, on order and partly delivered equipment. Construction and related plans may be roughly divided into four parts.

1. New garage building, which will house repair shop, parts and stockrooms, washrack and greaserack. It will be as modern as tomorrow, clean as a hound's tooth and lighted with shadowless fluorescent lighting.

2. Complete preventive maintenance program. Adequate and far-reaching, it is designed to stop 90 percent of trouble before it happens.

3. Shop equipment of latest design for repair and service of every part from front bumper to rear. This will permit all repair work to be done on our own premises, in our own way.

4. Driver educational program to increase their "shop-wiseness," to get them to call the garage instead of tinkering, thereby allowing them to be about their business of selling milk instead of sweating over car or tire trouble and delaying service to the customer.

The new garage is a part of an extensive expansion to buildings and facilities at the location of the present

### CRAWLING WILL BE ELIMINATED

"There will be no need for floor creepers or special floor heating because no mechanic will have to work lying on the floor. A two-post hydraulic lift will be used for all mechanical operations where, ordinarily, a mechanic would crawl under a car with a creeper.

"This lift can be used in many ways. Both hydraulic posts can be used to raise a truck at the same level or the lifts can be operated independently to raise the truck at an angle. One of the lifts can be used alone to raise a light truck or passenger car and the other can be used for raising one end of a truck. Various combinations can be arranged to suit the work."

by **GEO. W. ARNOLD**

Superintendent of Maintenance, The Borden Co., Inc., Oklahoma City, Okla.

plant, 2126 North Broadway, Oklahoma City. An entirely new milk plant costing several hundred thousand dollars is under construction.

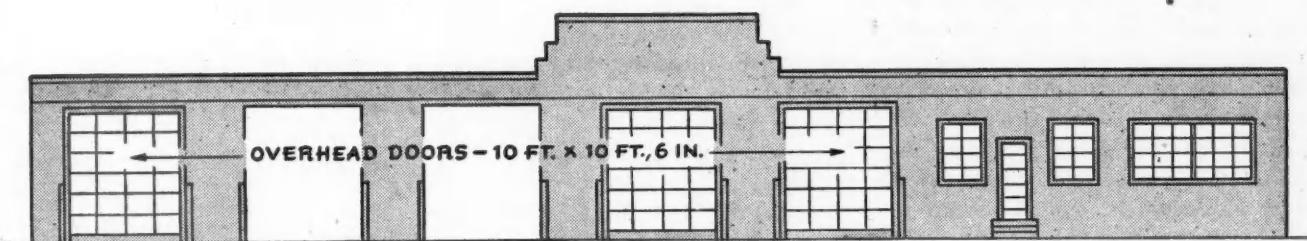
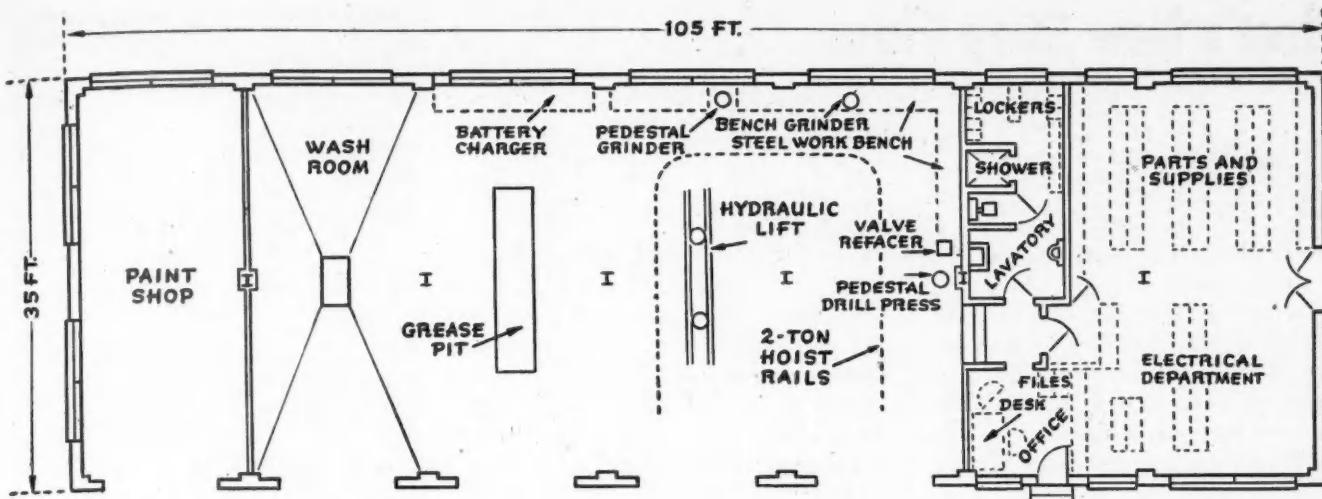
The garage department at the present time services 59 units and about six passenger cars operated by executives. These units are of various makes, with the exception of the retail fleet which uses a special dairy stand-up drive delivery unit.

At the present time the service

operations and repair service are operated on a 24-hour basis but much of the work—such as radiator repairs, reboring, body repairing—is sent out to other shops.

### Physical Features

THE new garage building is of masonry construction and measures 35 x 105 ft. The back will be well lighted with glareproof glass, and the front will consist of five over-



Upper drawing shows the floor plan of Borden's new fleet maintenance shop. Location of departments and principal equipment is indicated. Lower drawing shows front elevation. Ceiling over fourth door from left is raised to accommodate trucks on lift

35x105-ft. plant will have five doors, back daylighted with glareproof glass, fluorescent artificial lighting. New tools, departments and methods included



Geo. W. Arnold

head doors, which will allow individual entrance to the paint shop, the washroom, the grease pit and two for the repair shop.

The remainder will be devoted to space for hot and cold showers and lavatories, stock and parts room, and garage office. Lighting will be fluorescent throughout with enough foot-candles to make use of drop cords unnecessary except under cars on the lift.

**Work Centered Around Lift**  
**T**HREE will be no need for floor creepers or special floor heating because no mechanic will have to work lying on the floor. A two-post hydraulic lift, recessed in the floor to leave a smooth floor when the lift is down, will be used for all mechanical operations where, ordinarily, a mechanic would crawl under a car with a creeper.

This lift can be used in many

ways. Both hydraulic posts can be used to raise a truck at the same level or the lifts can be operated independently to raise the truck at an angle. One of the lifts can be used alone to raise a light truck or a passenger car, and the other can be used for raising one end of a truck. Various combinations can be arranged to suit the work. Not only will this eliminate creepers entirely but

(TURN TO NEXT PAGE, PLEASE)

# Fleet's New Shop Plans . . .

(Continued from Page 45)

it may also partly supersede the use of a chain hoist.

To provide for the full raise of this lift the garage will have a raised bay in the roof for this section of the shop. This, of course, eliminates the need for overall high ceiling. For handling engines and other heavy parts there will be overhead rails and a two-ton high-speed hoist.

All spring replacements, muffler replacements, driveshaft, rear and transmission work will be done by using the various saddles and lift-combinations of the two-post hydraulic lift. Preliminary studies indicate that much time can be saved over old methods, and the comfort of the mechanic in either hot or cold weather, will be improved.

The new garage building will be a separate building and will be located on the property line in the rear of the new plant which is being erected on a side adjacent to the present building on a site 212 by 300 ft. It will be near the loading docks and the parking lot for company trucks, making for easy, short runs to grease and washracks or repair shop. This has been designed to allow trucks to get to the service operation with a minimum of time, which will allow more trucks to be serviced in a given number of hours.

Garage operation will continue on a 24-hour basis with night and day crews. Most of the routine service is done at night, since most all the trucks come into the plant by 5 p. m.

## New Shop Equipment

A NEW house deserves a new "broom." Accordingly, the shop will be equipped with all new machinery and equipment.

Front-end alignment and wheel balancing will constitute a phase of the garage operation. We will check front-end alignment of all our units periodically. Wheels will be checked periodically for balance in order to prevent an out-of-balance condition due to lost weights, changing tires, tubes or other variable conditions. This will help reduce our cost in

brakes, tire wear and will eliminate hard steering. Out-of-balance conditions cause vibration in all parts of the unit, and uncontrolled vibration costs money in upkeep.

New equipment for the speedy and efficient testing of headlights will be installed, and the inspection and adjustment of headlights will go on a regular inspection schedule.

Listed under general garage equipment will be a new 5-hp. air compressor which will give us enough air to operate our hydraulic lifts, paint sprays, in addition to supplying air at the working surfaces of the benches, and for tires.

Two grinders will be in use. One is a pedestal grinder used for heavy duty work and the other will be a bench grinder to be used for light work.

An electric arc welder for general shop use and an acetylene outfit, complete with carbide generator and cutting equipment, will be used for general shop work.

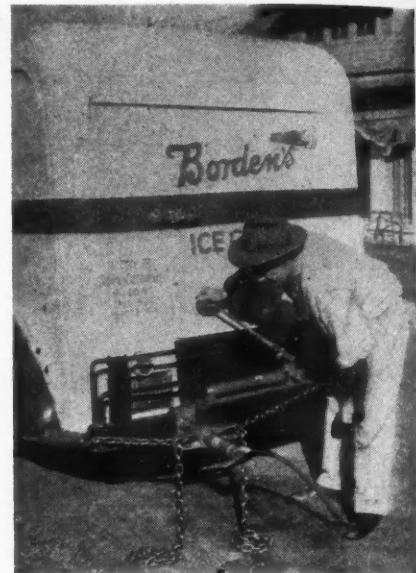
A battery charger handling from one to 24 batteries at one time will also be part of new shop equipment.

"Pièce de résistance" in the engine tune-up department will be an electric engine analyzer. Timing, point setting, condenser and coil checkup will be set by the findings on the analyzer. Throughout the shop the plan is to eliminate guesswork and the human element as much as possible and expedite the work. Any equipment that will help us get the job done better and faster will be installed.

## Painting and Body Work

WE WILL do our own painting, including signs and decals. Equipment is the best obtainable and consists of spray guns, regulators, safe lighting equipment and adequate filtered ventilation in a dustproof room. Painting and touch-up painting will go on a regular schedule. Today's fender dents will be straightened out and painted tonight and be back on the road tomorrow.

For general lifting we have two



*Borden mechanic is using portable power bending equipment to straighten a bent bumper. This is new equipment*



*Flexible shaft equipment used above was placed in use in old shop. New shop will contain many additional time- and labor-saving devices*

ten-ton hydraulic floor jacks. We will do our own body and fender work and have hydraulic bending and pushing equipment which, with the use of the proper accessories, can be used for everything from straightening a bumper to pushing out a caved-in turret top. In this department and with this equipment we can do a myriad of jobs in a minimum of time.

Frame, cross member, axle and even torque tube bending will be accomplished swiftly and economically. This same equipment can be used to spread springs, push spindle bolts and to pull or break loose tight

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#### COULD BE O.D. ELEPHANT

"Uncle Sam designed his trucks with an eye to angle of approach and departure, flotation on soft terrain, heavy-duty pulling and carrying ability. Did all this make Army motor transport too muscle-bound for life in the smooth-roaded civilian world? The answer is yes . . . no . . . and maybe. It all depends on what you're going to do, how you are going to do it and where.

" . . . unless the prospective businessman has some very clearcut ideas on what he's going to do with it, he'll find himself with a white elephant in O.D. paint on his hands."

**I** F I COULD pick up a couple of six-by-sixes, I could set myself up in the hauling business in Chicago."

"With a little fleet of jeeps, I could start a little city-delivery service in Philadelphia."

"I'm gonna get me one of them closed-body maintenance trucks, paint a sign reading 'Mr. Fixit' on it, and just travel around the West Virginia

hills fixin' washing machines, vacuum cleaners—anything the lady's got that needs fixin'."

Today, many a GI dreaming of independence and a cozy livelihood wanders mentally through the rich waste of machinery left high and dry by the tides of war—generating units, metal-working tools, trucks, tractors and trailers glitter in the sun as far as the mind's eye can see.

Most GI dreams center about the Army's excess motor transport, where the surpluses are greatest and the opportunities seem the ripest. But the answer to how practical are the dreams depends on how well adapted to commercial use military trucks are.

How economically can a jeep be operated? Does the tandem axle make the 2½-ton 6x6 too expensive  
(TURN TO PAGE 136, PLEASE)

# Wanna Buy a Truck?

Here is an appraisal of Army surplus vehicles from such practical angles as conversion, operation, maintenance costs

by T/3 BERNARD L. MILLER

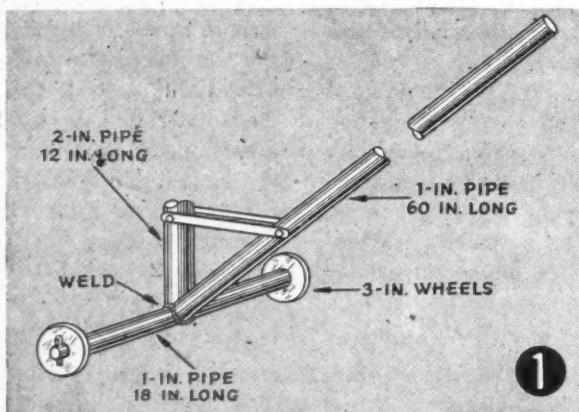
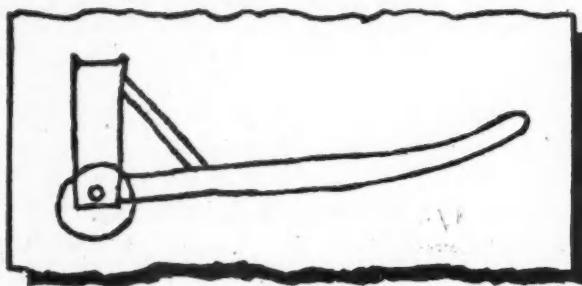
"Firepower" Correspondent

Courtesy of "Firepower"

*Army surplus vehicle pools contain a wide assortment of vehicles, such as those shown in the illustration below*



Commercial Car Journal will pay \$5 for acceptable shop hints and \$5 for parts salvage tips. A snapshot or a rough drawing with a simple explanation is all that is needed. CCJ will polish them for publication. Send one in today! Shown below is a typical contribution — just a rough sketch and a brief statement of the problem and its solution. See how it looks in Fig. 1. This brought Mr. Carroll \$5. There are other \$5 bills waiting for your contributions. Don't underestimate your ideas. Let the editor judge.



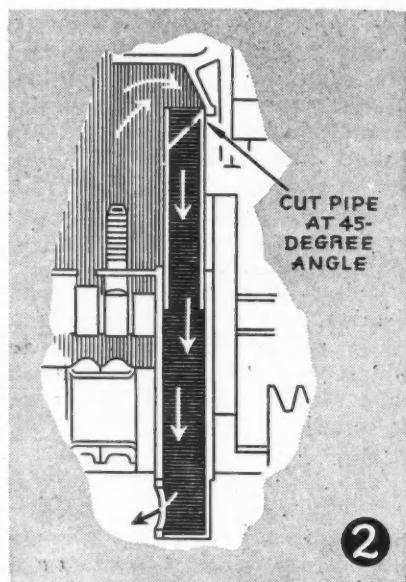
### 1. Home-Made Floor Jack

by Victor Carroll  
Garage Foreman  
Michigan Consolidated Gas Co.  
Grand Rapids

Unable to obtain floor jacks, I made one to help the drivers of our pick-up trucks. It comes in handy when there are not enough jacks to go around, especially when all drivers want to put on chains at once.

The drawing will show construction details. The axle is made from a piece of 2-in. pipe 12 in. long. An iron rod is slipped through this and 3-in. steel wheels are mounted on it. The upright piece is a 1-in. pipe 18 in. long. It is rounded out at the top to fit the truck axle, and the bottom is welded to the jack axle. The handle is a 1-in. pipe 60 in. long. It is welded to the jack axle in the same

# SHOP &



place and is braced to the upright with either a strap iron or another length of 1-in. pipe.

### 2. Crankcase Breather Tip

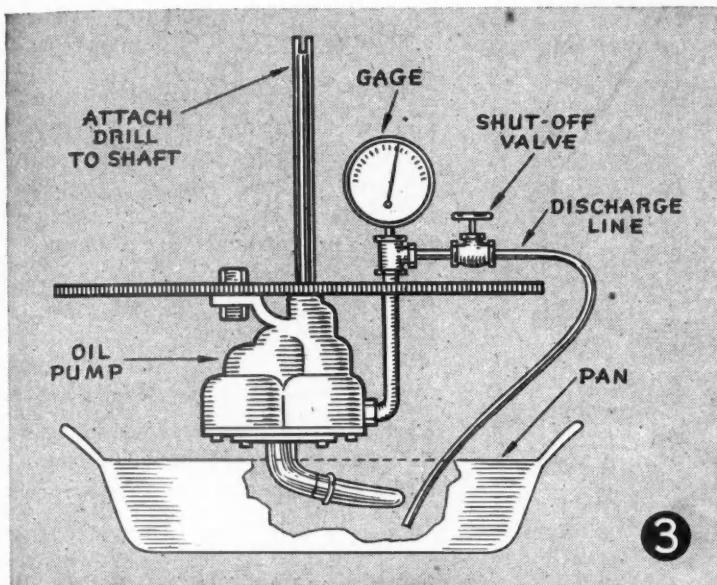
by Jack A. Nelson  
Automotive Engineer  
Standard Oil Co., Chicago, Ill.

We have found that the crankcase ventilation is frequently impaired on these engines due to the fact that the round tube extending into the valve chamber is too close to the inlet manifold (valve chamber cover). Also some replacement manifold gaskets tend to obstruct the opening.

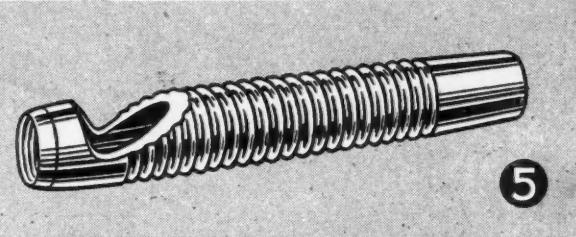
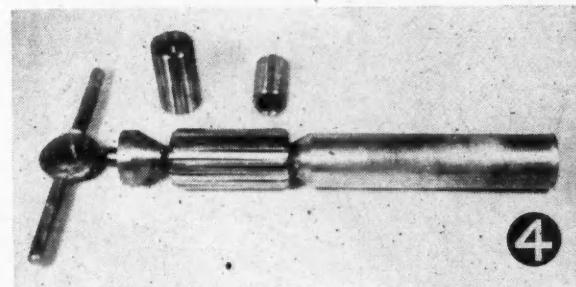
The following procedure will correct this and improve the conditions arising from poor crankcase ventilation.

1. Insert hammer handle in round tube and pull out.
2. Saw end of pipe at a 45 deg. angle as illustrated.
3. Replace tube and tap into place.

# SALVAGE HINTS



3



### 3. Oil Pump Check Device

by Howard E. Wood  
Maintenance Superintendent  
Dept. of Public Works, Hornell, N. Y.

Oil pumps are checked before assembly with a simple fixture which has been made in our shops.

A plate of  $\frac{1}{4}$ -in. scrap sheet steel was drilled to accommodate bolt holes in the oil pump body and tapped for a pipe fitting directly over the pump discharge opening. A gage and a shut-off valve were installed in the discharge line, as shown in the drawing.

The plate is clamped in a bench vise over a pan of oil deep enough to cover the pump intake, and the pump drive shaft is turned with a breast drill. The surplus oil returns to the source through a copper line.

With this device we are able to set pressure on pumps so equipped and check output under controlled pressure on other types.

### 4. Con-Rod Aligning Tool

by C. J. Kline  
Pacific Gas & Electric Co.  
Sacramento, Cal.

A connecting rod aligning tool can be improved to fit the large variety of bearings handled in the average shop. Many of them do not have enough different size mandrels to fit several sizes of bearings.

Due to these limitations it has been necessary to construct a number of sleeves to fit odd sizes of bearings. New sleeves had to be made each time a new size was encountered.

Mr. Kline decided to simplify the procedure and purchased three expanding sleeves in the following size ranges:  $1\frac{1}{2}$  to  $1\frac{7}{8}$  in. diameter;  $2\frac{1}{4}$  to  $3\frac{1}{8}$  in. diameter.

A special mandrel, tapered bushings and wing nut were made for use with the expanding sleeves. It is now possible to handle connecting rods having bearings from  $1\frac{1}{2}$  in.

to  $3\frac{1}{8}$  in. diameters, using only one mandrel with the proper size expanding sleeve.

The photograph shows the mandrel and sleeve assembly with the unit ready for use.

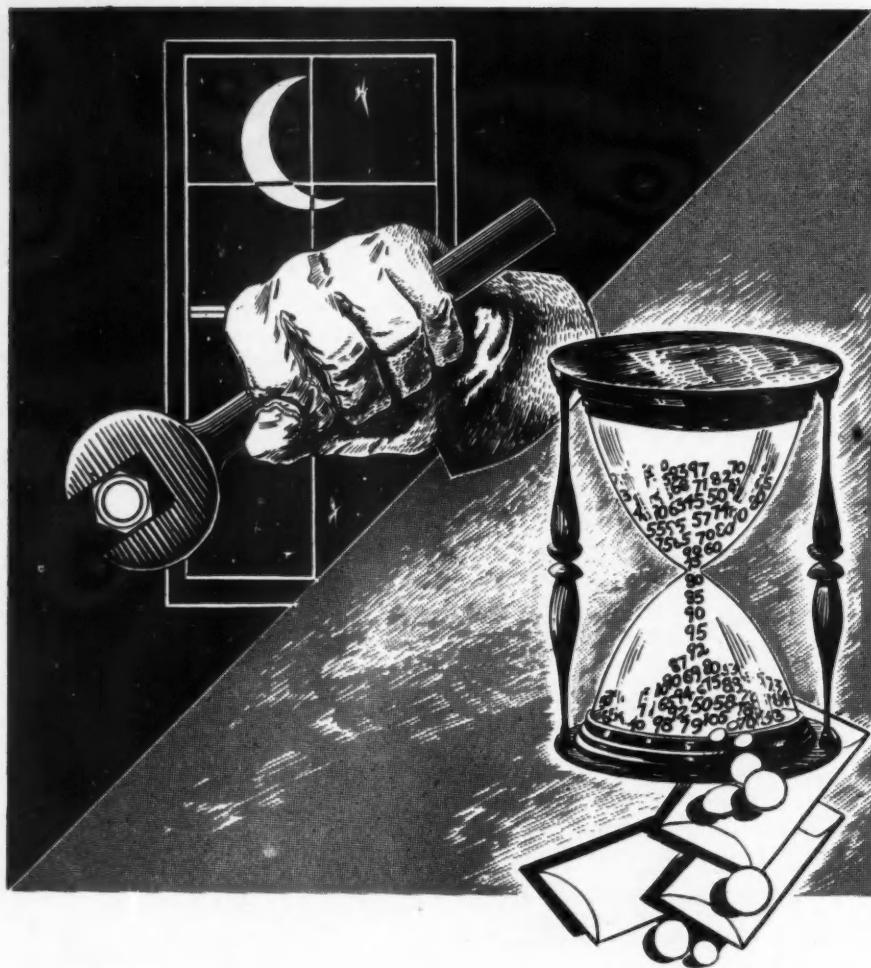
### 5. Gasket Punch

by Marcel LeBlanc  
Celotex Corp., Marrero, La.

Here is a gasket cutter I have made from a discarded front spring shackle pin.

The shackle pin is ground at the grease fitting end to a rounding edge. This leaves a sharp edge around the circumference of the hole which is  $\frac{3}{8}$  in. in diameter, just the size for many gasket holes. A notch is then cut into the pin about  $\frac{1}{4}$  in. from the cutting edge. This lets the gasket material bits out and keeps the punch from plugging.

Larger punches can be made in the same way from piston pins.



# **NIGHT WORK, WAGE RATES**

**Survey of southern fleets discloses  
that turnover in low skill categories  
is especially large. Relief in sight.**

by HARRIE H. BIERMAN

**I**N THE postwar readjustment period, superintendents of self-maintained fleets face problems as difficult of solution as any they had to contend with during the war.

Old units must be kept on the road until they can be replaced with new. Therefore, the fleet "boss" must, in many instances, expand his working force to meet the growing upkeep demands of constantly aging rolling stock. In any case, he must hold the men he now has or find suitable replacements. And he has to do these things in the midst of a more or less cockeyed labor situation.

Despite government and labor-organization unemployment statistics, there is, in many parts of the country, an acute manpower shortage. At least, the shortage exists insofar as fleet shop personnel is concerned. There are plenty of job applicants but comparatively few are usable for fleet maintenance.

Many One-Operation Mechanics  
RECENTLY, a clean-cut looking man in his middle 30's walked into a fleet superintendent's office. "I

## Fleet Shop

## DEALERS AND INDEPENDENTS

The anticipated postwar labor supply has not materialized. Two fleetmen give one explanation.

"One fleet maintenance manager interviewed stressed the fact that fleet shops are competing with automotive dealer service stations and independent repair shops for mechanic personnel. The wages offered by such shops, in many instances, are higher than most fleet operators feel they can afford to pay. Especially is this true where the men operate on a flat rate basis.

want a job," he told the fleet boss. "Fine!" said the latter. "What can you do?"

Further conversation disclosed that the applicant was a one-operation lathe man. He had worked in a war plant. One operation on one machine was all the machining experience he had had. He never had been taught to adjust the lathe he operated. It had not been necessary.

The fleet boss thought the man might fit in as a mechanic's helper, so asked him what wages he expected. The applicant stated that he had been earning \$3 an hour in war work but would hire out for \$2.50.

Thinking that this instance might be an exaggerated or, at least, an isolated case, the writer checked with the local U. S. Employment office. "This type of worker," he was told "represents one of our most serious reemployment problems. The man you mention—and we have hundreds like him—probably spoke the truth about his war industry earnings.

"We tell such job applicants that they simply have to adjust themselves to current pay rates in private industry. When they accept that idea,

they might make good fleet shop men, if trained as helpers."

Further questioning at this source revealed that (1) their files held a number of unfilled requests for fleet mechanics, (2) there are few applicants for these positions, (3) the armed forces are releasing plenty of aircraft mechanics but not many automotive men, (4) the latter are being retained as "essential" to transportation needs.

Despite this somewhat negative picture, about one-third of the fleet supervisors interviewed report that they have little or no labor problem. When they do have one, it consists of getting *additional* mechanics or of keeping up the supply of less skilled shop personnel. Incidentally, the majority of the latter, throughout the area checked, consists of negroes.

#### Fleet Survey Findings

HERE are some of the survey results, as they apply to individual fleet operations: FLEET No. 1, a utility, operates 135 units. The maintenance staff, aside from the fleet superintendent, includes three mechanics and six colored helpers. This shop has no labor turnover, except in the "less skilled" categories. No additional personnel is needed.

FLEET No. 2, a petroleum products wholesaler, operates (locally) 75 units. In addition to these, this shop services gasoline-dispensing pumps for its filling-station customers and its retail branches. Six mechanics are assigned to automotive work, while five handle pump repairs. There are, also, four Negro helpers. This shop has a full crew, and very little turnover. The fleet superintendent, in this case, reports that he has plenty of applicants, many of them usable. He accounts for this exception to the general situation by the fact that his employer is an old company, and, operating on a country-wide basis, it is nationally-known.

Recently, he hired an ex-service man. The applicant, in this instance, was a former fleet mechanic. While in service, he specialized on repairs to combat equipment. For this reason and, because he was a "high point" man, he was released. He was perfectly willing to accept a starting wage of \$1 an hour and has proved highly satisfactory.

FLEET No. 3, local and interurban package delivery (national) operates

86 units, locally. The maintenance force comprises six mechanics and several Negro helpers. The only turnover reported here is on colored personnel. And, for this type of labor, it is high.

FLEET No. 4, a bus fleet engaged in city and interurban passenger service, maintains 75 units. The shop force, in this instance, is made up of 20 mechanics and 10 Negro helpers. The supervisor of this fleet states that his labor turnover is high on all classes of personnel. The chief gripe, in this case, is night work—the shop operates on a 24-hour schedule.

However, in spite of reportedly high turnover, the shop now is staffed to fully capacity. During the past few months, the labor situation, in this instance, seems to have eased. Applicants are more numerous, some of them ex-service men. While none of the latter are mechanics, they are willing to accept jobs as mechanics' assistants, at the pay rate offered.

FLEET No. 5, local and long-distance hauling, has 158 home-based units. About 40 more operate from other cities in the same state. These are maintained on a contract basis at the point of location. The home fleet is locally serviced by six mechanics and five Negro helpers. The turnover in this shop is nil for mechanics and low for Negroes. And, not long ago, two mechanics were added to the force, which formerly had functioned with four. Overtime fattens pay envelopes in this shop.

FLEET No. 6, city and suburban bus company, operates approximately 290 vehicles, most of them over-aged. The working force consists of 105 men, 60 of whom are mechanics. The mechanic personnel of the staff—mechanics and mechanic's assistants—and lubricators are white. The rest of the force is Negro. This shop has a turnover, in all classifications, of 10 to 20 men per month. The principal quitting reasons are the pay rate and night duty. The work schedule here, too, is around the clock.

FLEET No. 7, ice and beverage delivery, operates 165 units serviced by three mechanics. This company makes and maintains its own truck bodies. Therefore, its shop force includes a body man (carpenter) and a painter. The maintenance manager of this fleet holds a rather pessimistic view of the labor situation.

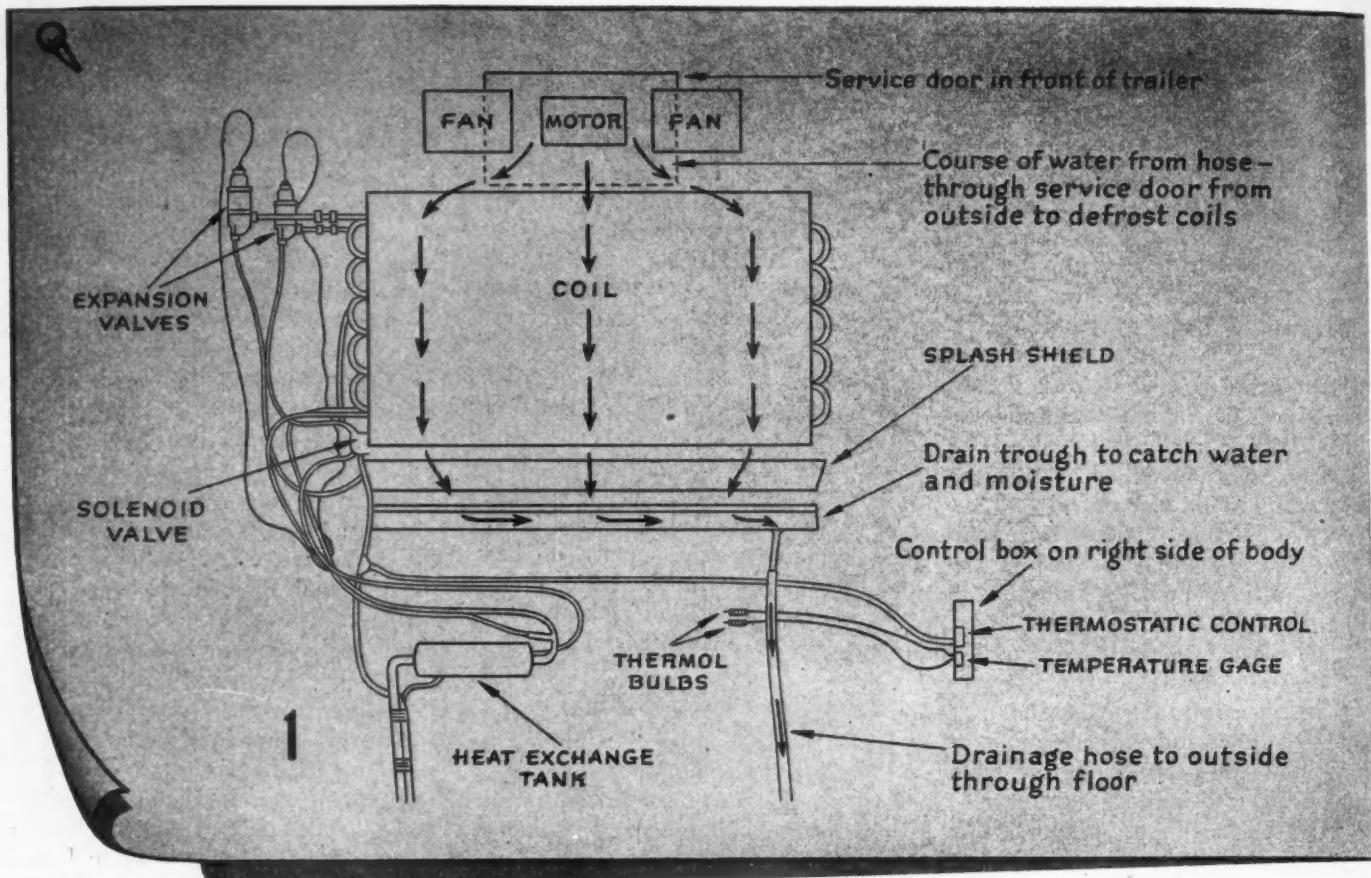
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## Problems

### PROVIDE WAGE COMPETITION

Supported by aggressive 'service salesmanship' to build up a work backlog, a fast and accurate mechanic, operating under this system, can earn upwards of \$75 for a 44-hr. week.

"Another fleet supervisor also brought up the personnel competition subject. He claims that dealer service stations, by reasons of the bigger 'take home pay' they offer, have skimmed off the cream of the mechanic supply, leaving only the slower and less competent men."



## Fleet-Designed Reefers

### Pass 130 deg. Road Tests



Completely self-contained

#### DEFROSTING SIMPLIFIED

"Defrosting is the bugaboo and the time killer with most refrigerated units. By reason of our location of the evaporator unit in the inside front of the van, we are able to defrost in about five minutes. We use tap water which is run down on the iced coils with a hose through a small hole in the front of the trailer. The water and ice run out on the ground through the bottom, with the result that the floor always is dry and that the defrosting can be carried out with very little rising temperature inside."

OUR lines traverse the so-called great American desert where summer temperatures on the highway reach 130 deg. Fahr., sometimes more. This is an ideal testing ground for refrigerated trailers. For several years we have tried out all of our ideas in this area. The equipment we have now designed is giving a good account of itself due to these tests and is the result of the lessons learned in these hot wastes.

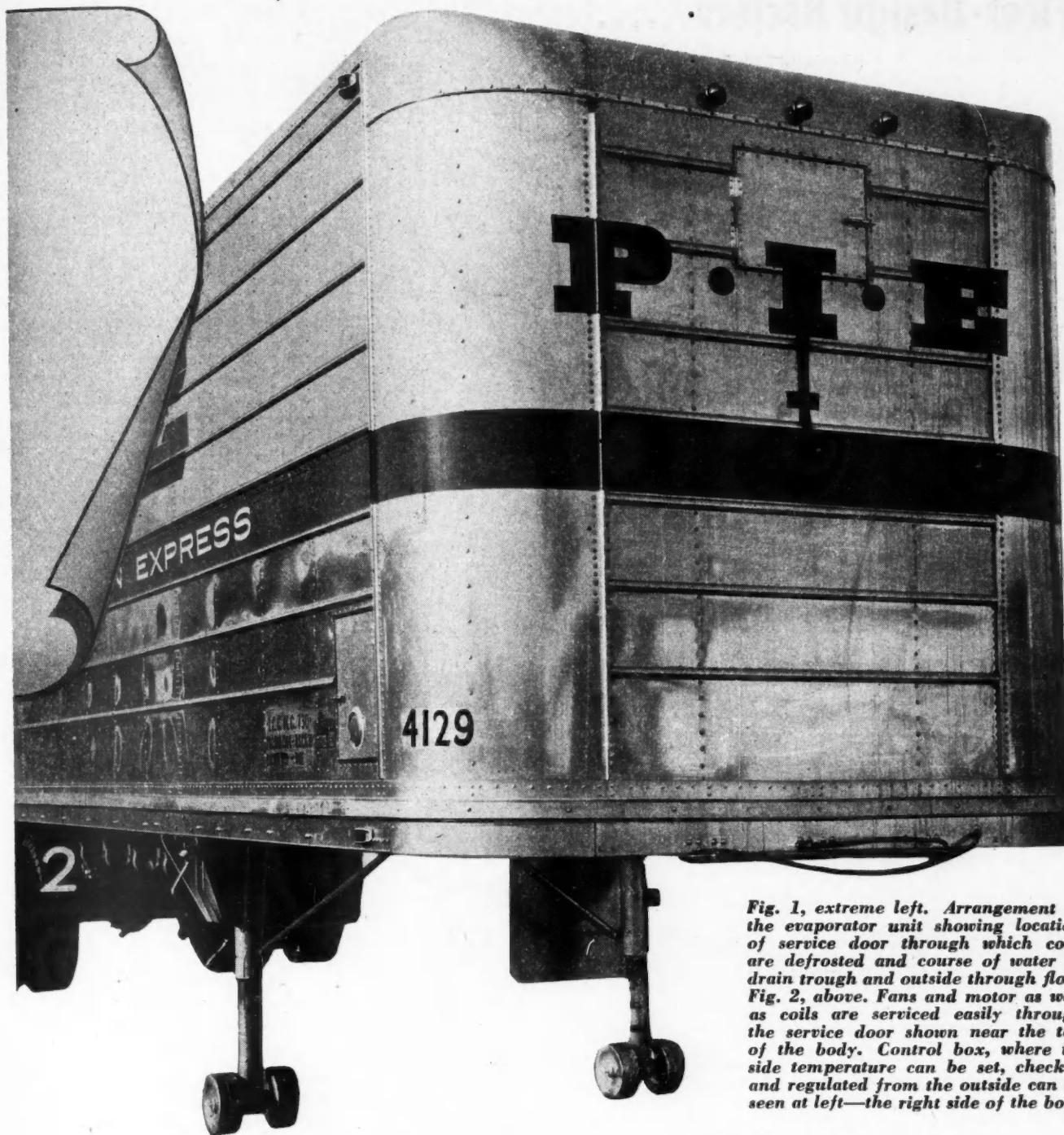


Fig. 1, extreme left. Arrangement of the evaporator unit showing location of service door through which coils are defrosted and course of water to drain trough and outside through floor Fig. 2, above. Fans and motor as well as coils are serviced easily through the service door shown near the top of the body. Control box, where inside temperature can be set, checked and regulated from the outside can be seen at left—the right side of the body

### units require little space, feature automatic control and safety devices

We handle regular cargoes of meats, frozen foods, butter, cheese, fruits, vegetables and many other commodities requiring refrigerated service.

Twenty reefer units are now in operation and 20 more will go into operation soon. Designs have been completed and they are now in the process of being manufactured.

Our refrigerator units are 35 ft. long and use 4 in. of cotton batting

insulation in the walls, floor and ceiling. The insulation is packed between the outside shell, which is of 26 gage steel, and an inside wall of  $\frac{1}{4}$ " plywood. The evaporator coil is located in the curve of the nose of

by H. E. LARSON and E. B. OGDEN

Superintendent of Maintenance

Assistant Superintendent

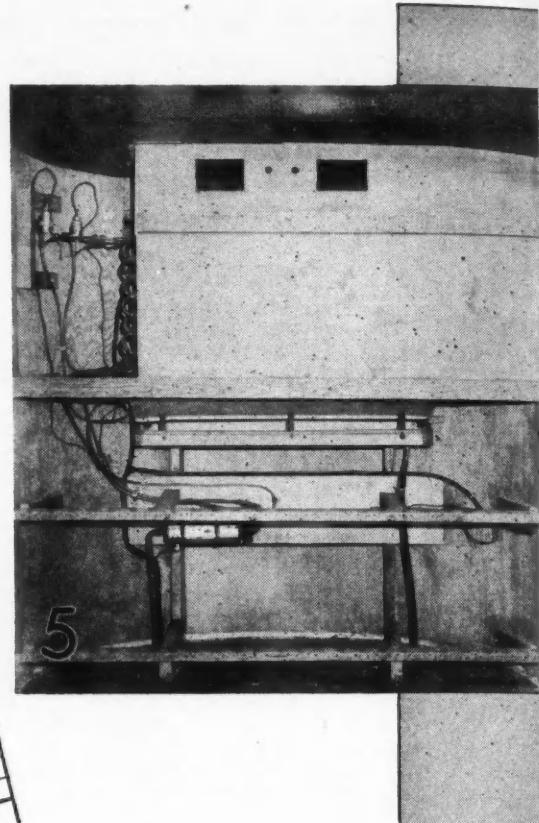
Pacific Intermountain Express Co., Salt Lake City, Utah

the trailer which in most instances is unusable space. The coil takes up only 14 in. of the trailer length.

Our old units with the compressor unit mounted on the forepeak of the  
(TURN TO NEXT PAGE, PLEASE)

## **Fleet-Design Reefers.....**

**(Continued from Page 53)**



**Fig. 3, left.** Trailer Inspection Sheet,  $8\frac{1}{2} \times 11$  in., serves as a guide in periodic service on the trailer unit. **Fig. 4, below.** Reefer Service Record Sheet (same size) for recording maintenance data, dates and work needed

trailer used up five feet of space inside the trailer body. We also found that these old units, mounted as high as they were, wrecked our trailer bodies and were very hard to service.

Our present compressor units are mounted on the left side of the trailer underneath the floor where their helps to balance the unit.

### Automatic Operation

THE unit is completely automatic in operation and its design is the result of P.I.E. experiments. The engine used to drive the compressor is a four-cylinder air cooled 16 h.p. unit which is connected to a two-ton refrigerating compressor by V-belts. Present refrigerant is menthol chloride but this will be changed to Freon when it is made available again, and will require only a change in our expansion valves.

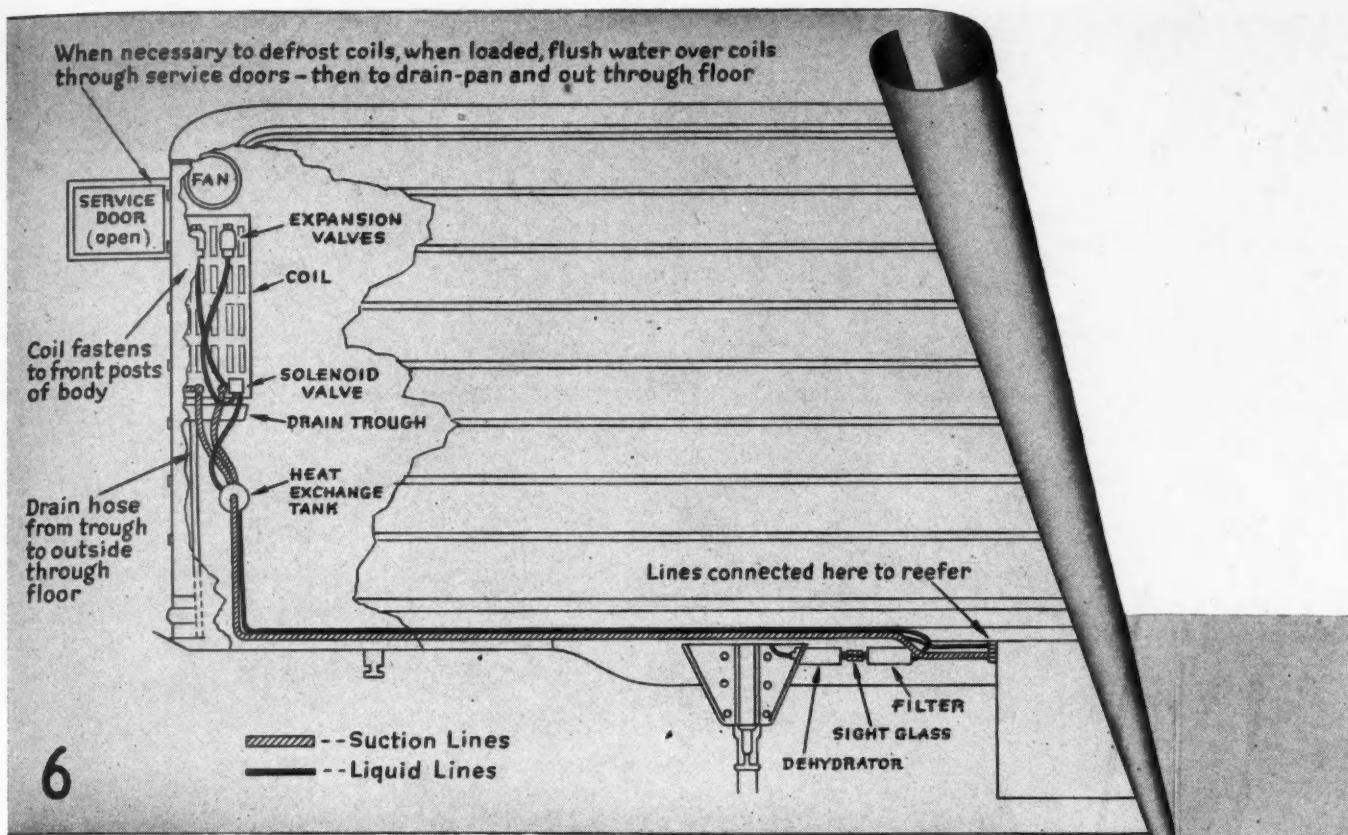


Fig. 5, upper left. Inside front of trailer with shield removed to show evaporator coil and defrosting arrangement. Fig. 6, above. Cut-away view of trailer showing suction and liquid lines, service door, coil and fan

Automatic control is regulated by a thermostat outside the trailer body which is set at the temperature desired for the inside of the body. The inside thermometer then takes over and starts and stops the engine and compressor. A small light on the corner of the trailer body, visible to the driver in his rear view mirror, indicates when the unit is running or stopped.

Drivers are responsible for the oil and gasoline for the unit and are required to check the temperatures at the beginning of a trip, at a midway point and upon arrival at the end of his trip. They must record these temperature readings on the driver's trip report form. This is most important and has saved us many dollars in claims on refrigerated merchandise due to the fact that we were able to prove to the cus-

tomer that his product was maintained at an even temperature throughout the entire haul.

To facilitate checking the units by drivers at night each one has its own illuminating light which is operated by a convenient switch. This eliminates the use of flash lights and permits the driver to use both hands in checking oil, gasoline and temperature settings.

Another automatic safety feature is a cranking time limit switch which comes into operation if the motor fails to start. The switch is set to

cut out if the motor does not start in 18 seconds, and a red light indicates to the driver that something is wrong. This prevents running down the battery and any other damage when a motor does not start for any cause from lack of fuel to broken parts.

#### Units Self-Contained

IT SHOULD be noted that these refrigerator units are entirely self-contained and that the desired temperature is maintained whether the unit is parked at the dock or whether

(TURN TO PAGE 100, PLEASE)

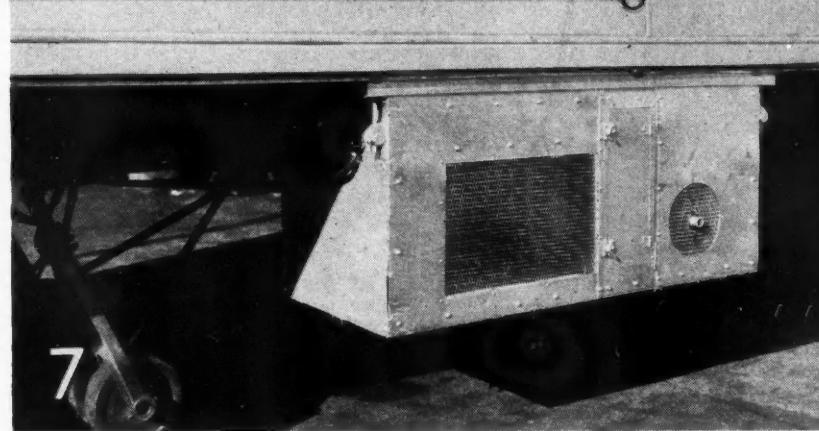
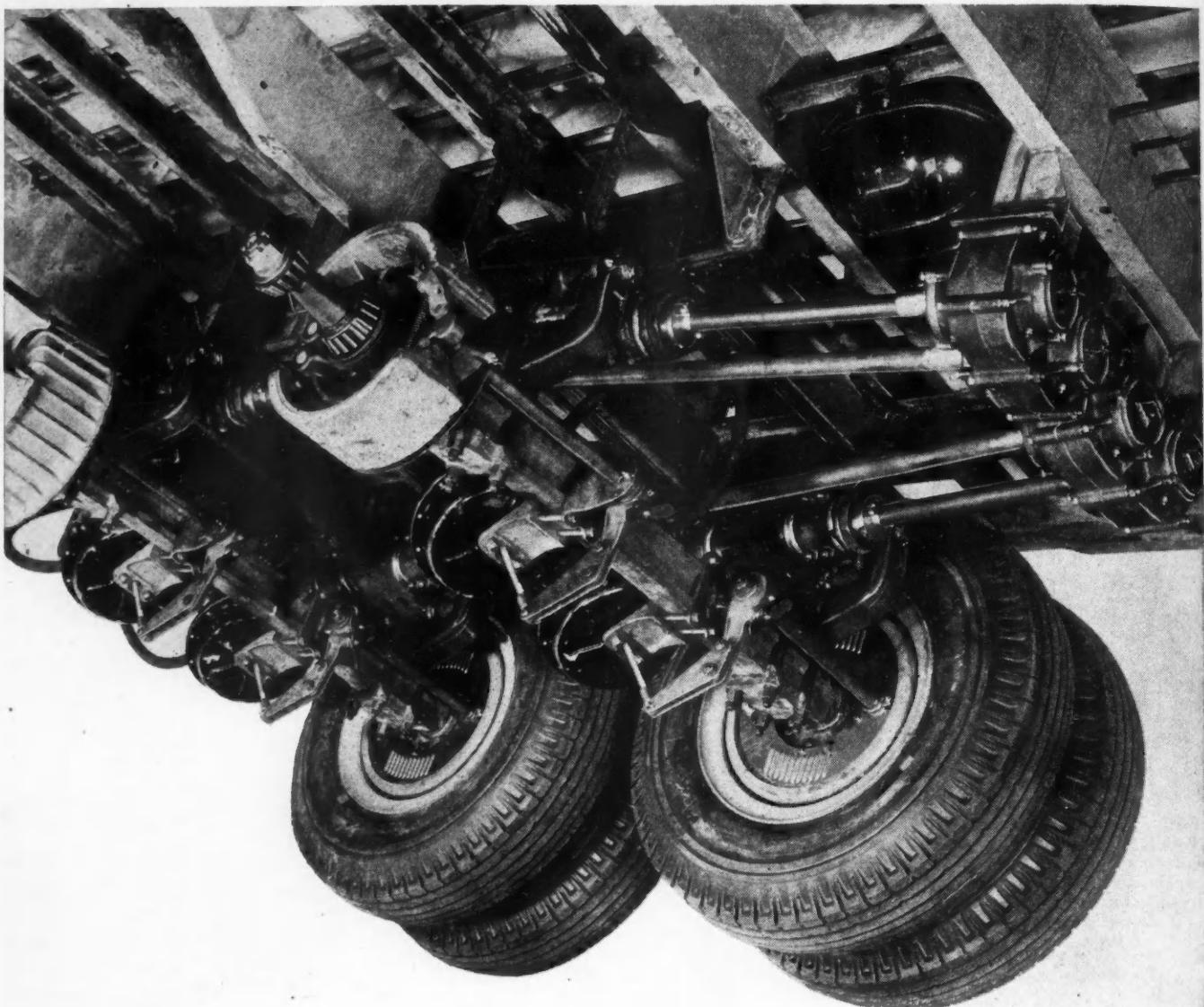


Fig. 7. The refrigeration unit is underslung on left side of trailer. Notice location of liquid lines, dehydrator, sight glass and filter



## Fruehauf Announces . . .

## New Gravity

### IMPORTANT FEATURES

From the standpoint of the fleet operator, this new suspension system holds many important features, among which are: 1. Greatly increased tire life. 2. Improved level ride for vehicle and load. 3. Reduction in maintenance of mechanical equipment. 4. Greater safety due to reduction of roll-over hazard. 5. Higher speed in rounding corners, due to self-steering properties of the rear axle.

**Swinging shackle cushions lateral and vertical shock. Bar permits equalized load level, self steering of rear axle**

**M**ARKING the first departure from traditional methods of spring suspension for heavy duty motor vehicles, the Fruehauf Trailer Co., Detroit, Mich., has announced the adoption of its revolutionary system of "Gravity Torsion Bar Suspension" as standard equipment on its entire line of tandem axle trailers. An exclusive license for the use of this principle in trailers has been obtained from the Truck Equipment Co., Buffalo, N. Y., holder of the basic patents. There is no appreciable weight difference between the new model trailer and comparable

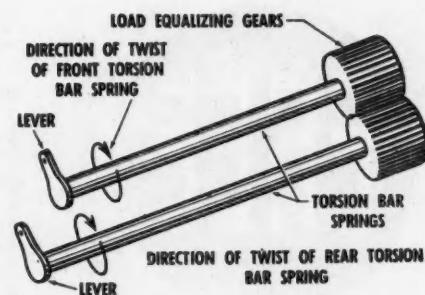
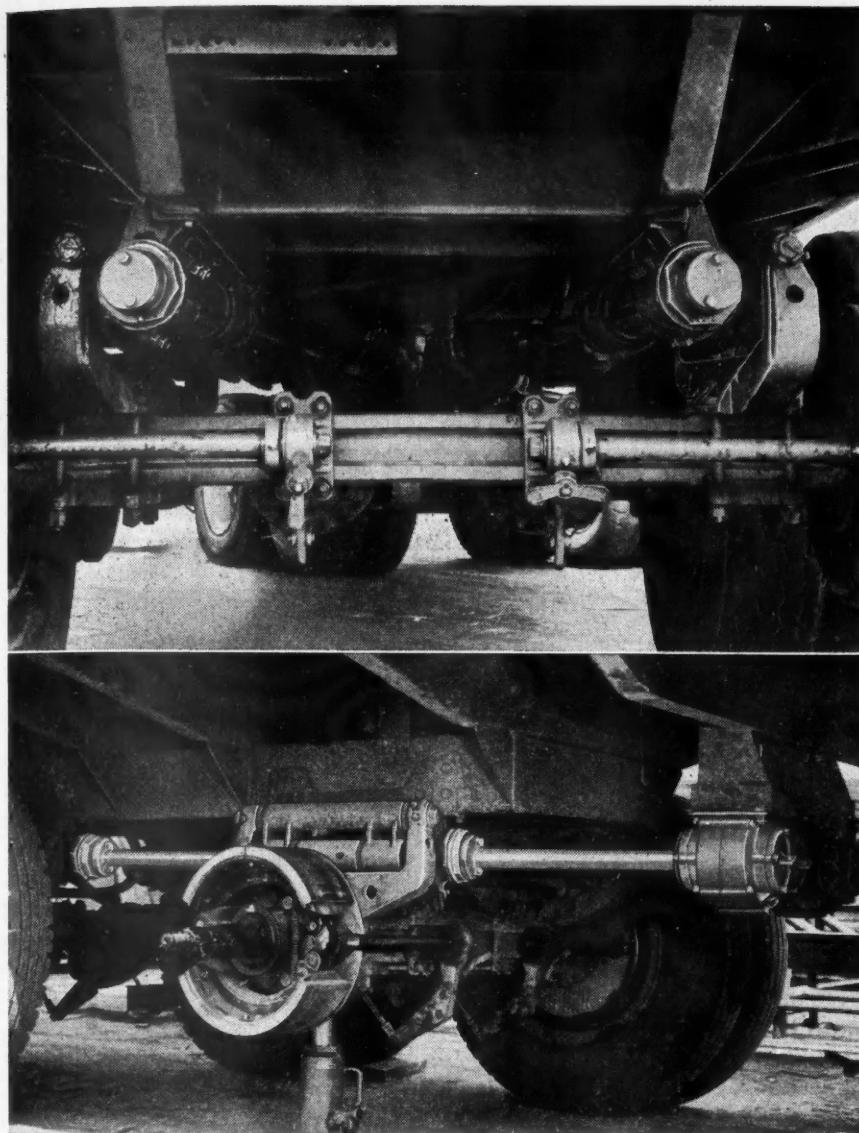


Fig. 1, extreme left. Chassis arrangement showing swinging shackles for each axle and inclinable torsion bars. Ends of bars are housed in gear boxes

Fig. 2, upper left. Under-chassis view of rear end showing axle mounted shackles and housing for ends of torsion bars at frame end of link

Fig. 3, lower left. Wheel has been removed to show swinging shackle construction. Inclined torsion bars impart self-steering ability to rear wheels

Fig. 4, above. Schematic diagram showing principle of load equalization. Gears on bar ends absorb twist between body and axle, equalizing load level

# Torsion Bar Suspension

units with conventional suspension.

## Road-Tested Almost Two Years

ALTHOUGH the basic principle of the suspension system has been available for some time its application to the Fruehauf line took considerable effort by way of engineering design and experimentation before the sweeping change could be adopted and readied for production. As a matter of fact, a number of vehicles have been in operation almost two years, under constant control, while a large number of new vehicles have been placed in operation in various

regions more recently before the design was finally approved for introduction to fleet operators.

## Suspension Details

AS SHOWN in Fig. 1, the suspension consists of longitudinal torsion bars, one for each axle, terminating in two midship gear boxes forward of the front axle. The rear ends of the torsion bars are fixed in the shackles. Unique feature of this design is the fact that the axes of the shackles and torsion bar are inclined toward the center of the chassis, thereby imparting self-steering

ability to the rear wheels.

The two gear boxes each contain a pair of one-to-one load equalizing gears. Their function is to serve as a torque divider so as to load each torsion bar equally regardless of the movement of wheels on each side with respect to each other. Thus if one wheel deflects while the other is level, part of the torque on the one torsion bar will be transferred to the mating torsion bar so as to equalize the loading upon them.

## Outstanding Features

FROM the standpoint of the fleet operator, this new suspension system holds many important features, not possible of realization heretofore. Several of the most outstanding may be noted as follows:

1. Greatly increased tire life.
2. Improved level ride for the vehicle and load.
3. Marked reduction in maintenance of mechanical equipment.
4. Greater safety due to reduction of roll-over hazard.
5. Higher speed in cornering, etc.

(TURN TO PAGE 118, PLEASE)



# PUBLICATIONS

USE THE POSTCARD - NO STAMP NEEDED

Here is a selected list of outstanding books offered in 1945—reviewed again for the fleetman in case he overlooked their possibilities when first described. Order copies by code number.

### L3. Bearing Manual

Recommended procedures for sound bearing maintenance have been compiled into a 20-page manual by three special engineering committees representing the leading anti-friction bearing manufacturers.

Instructions begin with diagrams showing the nomenclature of the ball bearing, listing each according to type and illustrating proper methods of handling in assembly or disassembly. The importance of cleanliness is stressed in each of the operations, washing being taken up in detail. A copy is available for the writing of L3 on the postcard.

### L13. Spark Plug Guide

An 18-page, pocket-size data book, together with a handy spark plug indicator has been made available to the fleet operator. The indicator is a cardboard folder compactly arranged for the pocket. On it are pictured nine spark plugs representing nine heat conditions. The booklet is used in conjunction with the indicator in determining spark plug data. Writing L13 on the free postcard will bring you a copy.

### L14. Welding Booklet

Many money-saving welding applications in repairing automotive parts are presented in a new 12-page booklet which is now available to the fleet field. Instructions for welding with

bronze, steel, aluminum and lead are discussed in the repair of over 400 various types of automotive parts. In addition, soldering and hard-facing is described in clear, step-by-step procedure. Profusely illustrated, this booklet is interesting and a valuable aid to the welder. Get a copy by writing L14 on the free postcard.

### L23. New Bearing Manual

The technical staff of a well-known bearing manufacturing company has just published a 12-page bearing manual in the interest of better bearing maintenance. The booklet takes up several phases of service, including storage and handling, removal, cleaning, inspection, mounting and front wheel servicing. Write L23 on the postcard for a copy.

### L27. Mechanic's Handbook

This booklet is different from the general run of free literature and is outstanding in its presentation of service pointers for the automotive service man. Filled with scores of trouble shooting information, maintenance hints, tune-up data, etc., it is a "must" for every mechanic.

Get a copy by writing L27 on the postcard.

### L221. Tire Maintenance Manual

This booklet entitled, "Vehicle Factors Affecting Tire Mileage," is brought to the attention of the fleet

operator again because of its outstanding value to the field. It is a 33-page publication filled with practical information on causes of premature tire wear. Eighteen diagrams and photographs show just what to look for in tire inspection, how breaks originate and how to determine the causes of these defects. Write L221 on the free postcard for a copy.

### L229. Cooling System Manual

Here is just the publication for the guidance of the fleet operator in servicing the cooling system.

Every possible point where trouble might develop in the cooling system is discussed in this 26-page booklet. Just write L229 on the free postcard.

### L235. Tire Handbook

A 60-page, pocket-size booklet has been prepared by a leading tire manufacturer in the interests of tire conservation. It is a publication filled with valuable information on many aspects of the tire conservation problem.

Charts have been included to show the effect on tire life of wheel position, tire rotation, axle sag, wheel alignment and loading. Other contributing causes to premature tire failure are also brought out in simple, effective language. Your copy is waiting. Write L235 on the free postcard for one.

# NEW

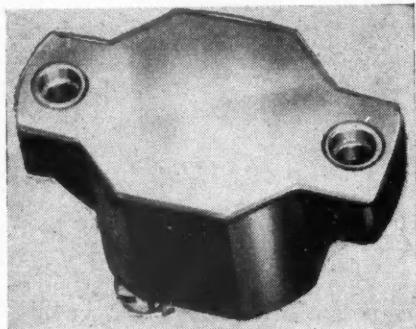
## PRODUCTS

USE THE POSTCARD - NO STAMP NEEDED

The newest in replacement parts, accessories, shop equipment and supplies. For more details of products described or advertised on these pages, use the accompanying free postcard.

### P197. Improved Circuit Breaker

An improved type electrical circuit breaker has been developed by the Spencer Thermostat Co., Attleboro, Mass. This Klixon circuit breaker is built as a permanent protective



device suitable for repeated interrupting short circuits or overloads in the electrical system of truck, car or bus.

Several types are available, including the manual reset, which is set by hand when the circuit has been disconnected; the automatic reset, (illustrated) which makes and breaks the circuit automatically in event of a short. The indicating manual reset and the switch type are also available, as are the trip-free and non-trip-free units.

All types have as their actuating means a Spencer disc, calibrated to open predetermined overload currents—a simple, snap-acting thermostatic disc that takes the place of

over-center-toggle mechanisms, magnets or complicated parts.

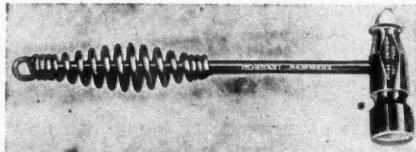
These circuit breakers are compact, require very little mounting space and are practically unaffected by shock or vibration, according to the manufacturer. Their inherent thermal time lag characteristics allow them to operate fast on high current values to give full protection, but have long enough delays at lower overloads to avoid nuisance trip-outs.

Positive connections provided by screw terminals eliminate excessive voltage drops often encountered with fuse clips due to corrosion. All types have pure silver or special alloy contacts.

Use Free Postcard For More Details.

### P198. Welder's Metal Hammer

A new all-metal Ball-Pein hammer has been developed by the Atlas Welding Accessories Co., Detroit, Mich. This hammer is said to give



prolonged life, greater safety and perfect, dynamic balance.

The all-steel handle is unbreakable and will not come loose from the head. The Flex-O handgrip is shaped

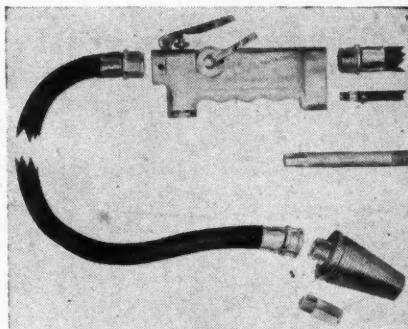
to fit the hand and absorbs the shock of the hammer blows.

Several models are now available in a variety of sizes.

Use Free Postcard For More Details.

### P199. Flushing Gun

The new type Zoo Master Gun developed by the Kalamazoo Aero-Motive Mfg. Co., attaches to standard air and water lines and is operated easily by one man. It is



streamlined and well balanced for instant water and air regulation. The self-holding, screw-type adapter fits all sizes of radiator hose ranging from 1 to 2-in. diameters, and when used with the 30-in. rubber hose, makes flushing of the cooling system a simple task.

The flushing gun becomes a pressure washer when the washing nozzle is inserted in the adapter. It builds up sufficient pressure to knock

(TURN TO NEXT PAGE, PLEASE)

# PRODUCTS

NEW

(Continued from Page 59)

USE POSTCARD BETWEEN PAGES 58 & 59

loose the dirt, and the flexible gun hose makes it convenient to clean properly the under side of the fenders and other parts of the chassis.

By closing the water valve the gun also becomes an air cleaner which is convenient to use for blowing out dirt and foreign matter that gets lodged in the fins of the radiator or other parts of the truck.

Use Free Postcard For More Details.

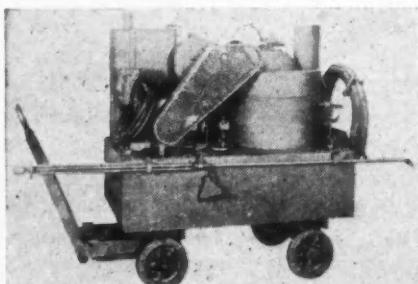
## P200. Flushing Fluid

The Puritan Co., Rochester, New York, announces a new product—Puritan Flushing Fluid—which is used for cleaning out and flushing hydraulic brake systems. It is a quick-acting, efficient compound, non-corrosive and with no harmful action on either metal or rubber parts of the hydraulic brake line. Distribution is through N.A.P.A. and regular Puritan jobbers.

Use Free Postcard For More Details.

## P201. Steam Cleaning Unit

Oakite Products, Inc., New York, has developed a new multiple-duty steam cleaning unit known as the Oakite-Vapor Cleaning Unit.



This unit is a self-contained, down-draft flame, oil-fired, enclosed coil-type steam generator that delivers hot vaporized cleaning solutions under selective pressures up to 200 lb. for the speedy, easy removal of grease, grit, grime, paint and other deposits from surfaces.

A wide range of fuel oils such as No. 1, No. 2 or No. 3 fuel oil, kerosene or gasoline, may be used to operate the unit. Due to its flexibility of steam pressures, the unit may be used on many different types of light and heavy-duty cleaning.

Use Free Postcard For More Details.

## P202. Automatic Vulcanizer

The automatic Resistoflex Vulmaster developed by the Resistoflex Corp., Belleville, N. J., is said to take the guesswork out of hot patching of either synthetic or natural rubber tires and tubes.



This machine requires only 4 in. of bench space, yet is said to repair injuries of any size of truck and passenger car tires. Radial cuts occurring on the sidewalls of tires may be repaired without removing the tire from the wheel and without deflating it, the company states.

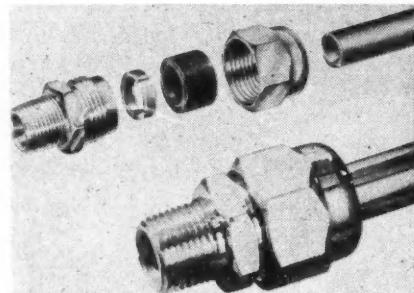
A small fuse automatically controls temperature so that when the flow-

point of rubber is reached, the electricity is shut off and curing begins. Once the operator has inserted a fuse, he can attend to other work with the assurance that the repair will be completed when he returns.

Use Free Postcard For More Details.

## P203. Flexible Tubing Fitting

Flexigrip tubing fittings which eliminate end preparation or soldering of the tubing and yet produce a stronger, leakproof and flexible joint have been announced by Gustin-Bacon Mfg. Co., Kansas City, Mo.



The fitting, made in standard sizes from 1/8 in. to 1 1/2 in. O. D., consists of four parts—the body, a gripping ring, synthetic rubber gasket and nut. To attach the fitting, the nut (with gasket and ring inside) is slipped over any plain-end tube, cut to desired length. The tubing end is inserted into the body as far as it will go and the nut tightened. Tightening the nut compresses the ring into a tight grip and moulds the gasket around the ring for a leak-proof seal that is so flexible it will withstand unusual vibration or impulse.

Flexigrip tubing fittings are available in brass, aluminum or steel.

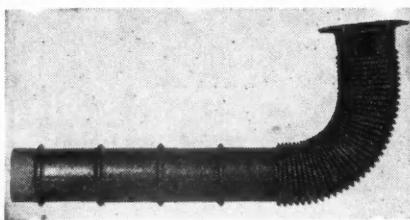
Use Free Postcard For More Details.

## P204. Glass-Rubber Ducting

A new material, "Airtron," created by Arrowhead Rubber Co., Los Angeles, Cal., is now available as a duct-

### ... NO STAMP NEEDED

ing for hot or cold air. Made of glass cloth and rubber, the tubing provides high insulation qualities as well as great flexibility. The flexibility makes its use desirable where vibration is



present, for it will operate indefinitely under conditions where metal ducting would develop fatigue cracks.

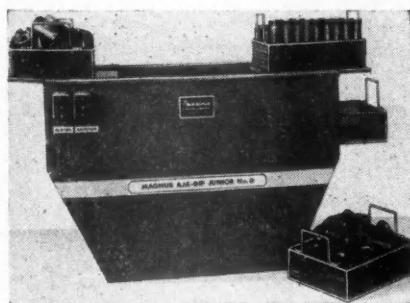
Airtron is said to withstand temperatures from minus 60 to 300 deg. Fahr. without a change in properties and will stand over 50 lb. per sq. in. internal pressure at all temperatures. It is unaffected by air, light, water, gasoline, oil and all but concentrated mineral acids.

The ducting is manufactured in tubes from 1 to 6 in. in diameter and in any length desired, as well as in specialized shapes where required.

Use Free Postcard For More Details.

### P205. Parts Cleaning Machine

The Equipment Division of the Magnus Chemical Co., Inc., Garwood, N. J., announces a new small



machine for cleaning dismantled automotive parts, the Magnus Aja-Dip, Jr.

The Magnus Aja-Dip, Jr., is a sim-

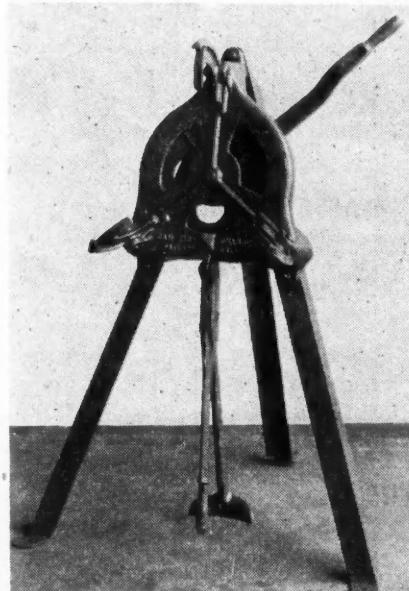
ple cleaning machine designed to speed up the removal of grease, oil, dirt, carbonized deposits and gasoline residues from all automotive parts. The parts to be cleaned are agitated—up and down 72 times a minute—in the cleaning solution.

The Aja-Dip, Jr., can be used with any type cleaning material—hot or cold solutions. The machine is available in two sizes No. 0 and No. 00. Either of the two models can be supplied with built-in rinse compartments which may also have the agitation features, if desired.

Use Free Postcard For More Details.

### P206. Tire Changer

The Cam Tire Changer, developed by the Cam Tool Co., Oakland, Calif., takes tire work up off the floor, and is said to eliminate hammering and prying to remove and install tires. It makes inside or outside inspection easier, speeds up tube insertion, helps prevent accidents and reduces labor costs, it is stated.



The changer includes a built-in cam bead breaker, which breaks all beads, whether on rusty runs, safety wheels or standard rims, according to the manufacturers.

Use Free Postcard For More Details.

### P207. Portable Cranes

Blue Heron Cranes, distributed by the Cam Tool Co., Oakland, Cal., enable one man to lift, move and lower up to 2000 lb. Two models are available, portable and truck type.

The portable Blue Heron Crane, illustrated, is especially advantageous for fleet shop use. It is available in two capacities, 1000 and 2000 lb.



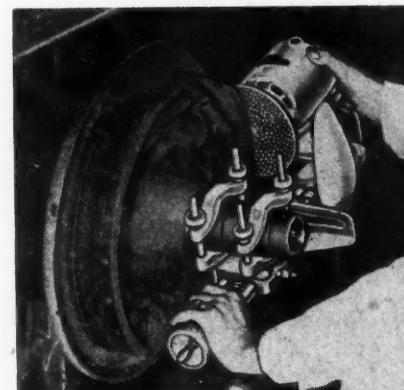
This model has two height adjustments, enabling it to reach into places such as into a truck cab to remove the transmission, or under a shelf to pick up heavy parts.

Use Free Postcard For More Details.

### P208. Brake Shoe Grinder

A new model brake shoe grinder has been developed by the Barrett Equipment Co., St. Louis, Mo.

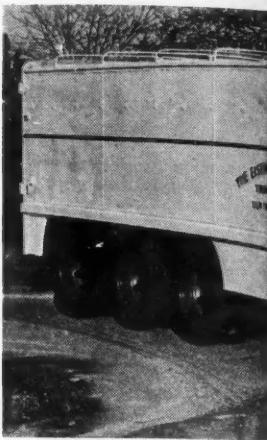
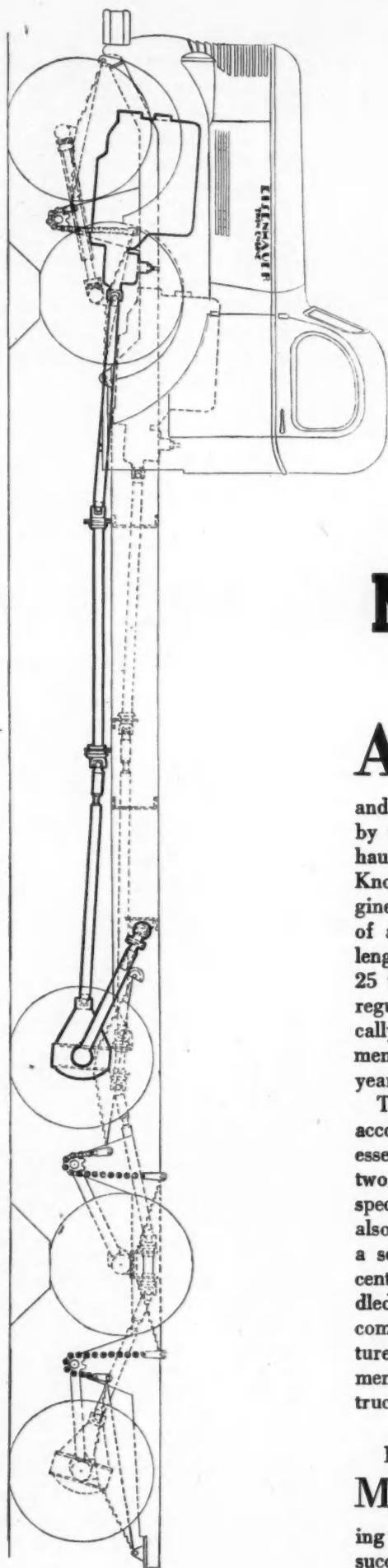
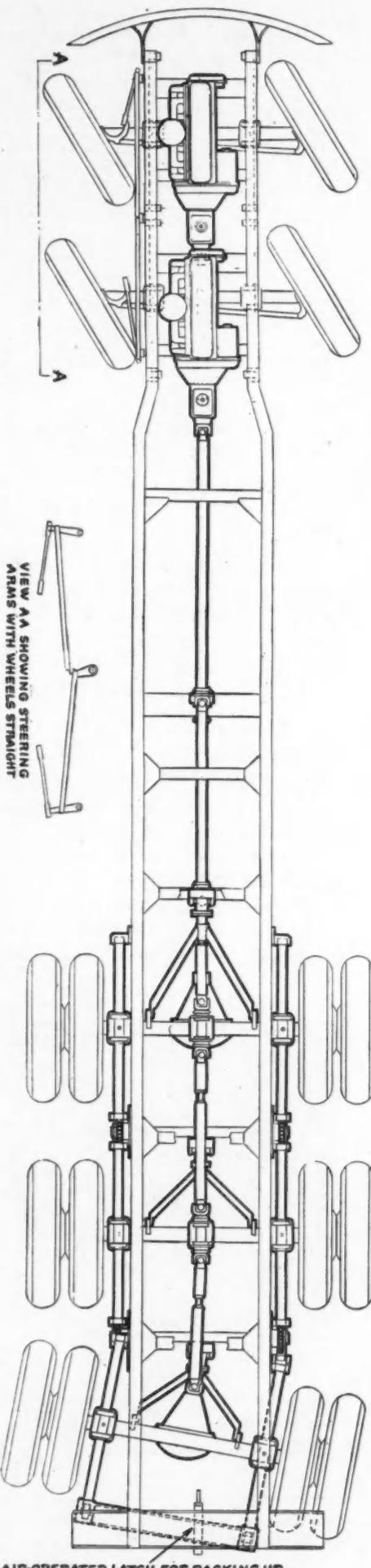
The latest model of the truck and bus Brake Dokter has a new angle head motor. This improvement is said to reduce materially the time required to fine truck and bus brake lining.



This brake Dokter combines a brake drum gage, a brake shoe gage, a centralizing tool and a lining grinder into one versatile tool.

It centralizes and adjusts brake shoes accurately while they are in position on the truck after shoes are set correctly, the Dokter removes

(TURN TO PAGE 146, PLEASE)



*Left. Drawing showing arrangement of twin engines, drive shafts, rear suspension, tandem steering*

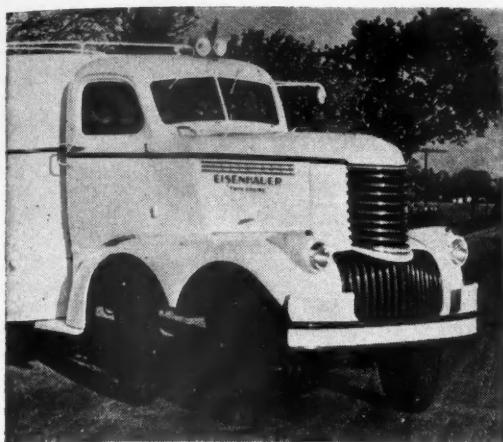
## New Twin-

**A** UNIQUE heavy-duty truck—intended for fast, long distance hauling of perishables, fluids and live loads—has been developed by the truck division of The Eisenhauer Mfg. Co., Van Wert, Ohio. Known as the Eisenhauer Twin Engine Truck, it has a payload capacity of about 20 tons. With an overall length of 35 ft. and a truck bed of 25 ft., it is said to meet the length regulations for highways in practically all states. The special arrangement of wheels incorporates 16 Good-year Hi-Miler heavy duty tires.

The initial vehicle shown in the accompany illustrations, is produced essentially from the major parts of two Chevrolet 1½-ton trucks. Other special mechanical units and controls also are incorporated. However, from a service standpoint, almost 90 per cent of service operations can be handled by a Chevrolet truck dealer. The company contemplates the manufacture of similar vehicles using elements of any other makes of 1½-ton trucks.

### Four Front Steering Wheels

**M**ANY new features are incorporated in this vehicle, including what is believed to be the first successful application of four front steering wheels, in tandem rather than



*The 20-ton, 10-wheeler, produced from two Chevrolet 1½-ton trucks. Arrangement of four front wheels in tandem increases maneuverability*

#### OUTSTANDING FEATURES

**Payload capacity, 20 tons; overall length, 35 ft.; truck bed length, 25 ft. Power plants, two 93-hp. Chevrolet engines—one under hood, one under cab—individually powering separate axles.**

**Three rear axles—two standard two-speed Timken, center axle "dead". Brakes are 10-wheel. Midland air-over-hydraulic.**

**Special compensating spring suspension increases flexibility. Allows any set of duals to rise or drop with level of road.**

**Clutch and transmission is separate for each engine. Clutches are mounted on one pedal, but transmissions are shifted independently.**

**A differential type synchronizer enables driver to select power at any speed and in any gear. Torque output of two engines is balanced by a torque equalizer actuated by manifold pressures.**

## Engine Truck Has Tandem Front

in dual relation, thus eliminating the need for power steering. The steering gear for the Chevrolet job is an adaptation of a heavy-duty Saginaw unit, arranged with special geometry for the linkage to the two front axles.

#### Laterally Shifting Rear Axles

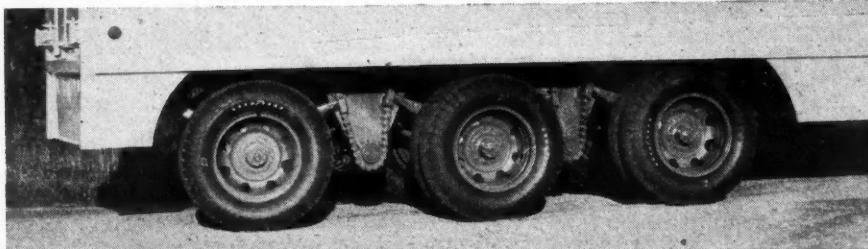
THE truck has three rear axles—the first and last being driving axles while the one between them is a dead axle. Dual wheels are on the three rear axles, singles on the front axles. It is claimed that better traction is obtained because of the remote spacing of the live axles. The driving axles are standard two-speed Timkens, supplied on 1½-ton trucks but the shifting, instead of being manual, is done by air cylinders.

To further enhance the ease of steering a vehicle of this character and to improve its maneuverability, the rearmost axle is arranged to pivot at a ball joint on the torque tube with a movement of some eight inches laterally in each direction. The other two rear axles have a slight amount of freedom for lateral movement.

#### Two 93 hp. Engines in Line

POWER is supplied by two standard Chevrolet 93-hp. engines mounted in line, one under the hood, the other beneath the cab. The front

**Made from two 1½-ton Chevrolets, 20-ton vehicle has four front wheels, 93-hp. engines, three flexible rear axles, compensating spring suspension**



*Springs of adjacent axles are provided with a compensating device to increase flexibility. It consists of a chain connection rolling over sprockets and allows any set of duals to rise or drop with contour of road, while frame remains level*

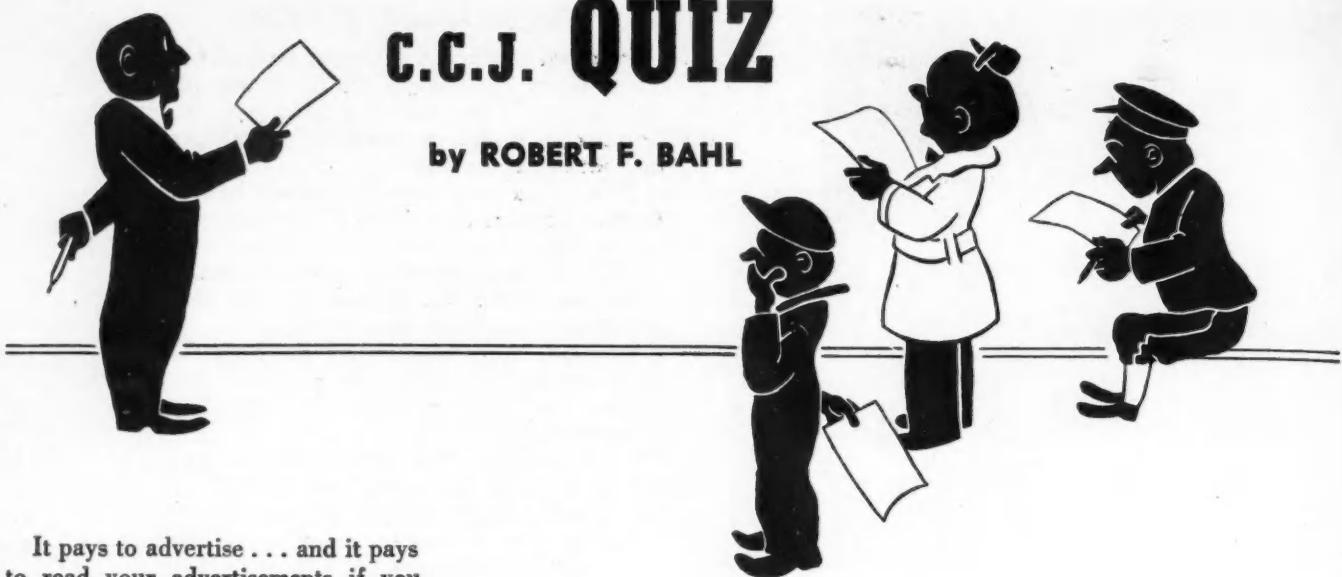
engine is directly connected by the propeller shaft system to the front rear axle while the rear engine is connected to the rearmost axle. Engines can be used either together or independently at the will of the driver. Power selection can be made

by the driver at any road speed and while in any gear. This is accomplished by means of a differential-type synchronizer which serves to synchronize the speed of the idle engine with that of the running engine.

(TURN TO PAGE 150, PLEASE)

# C.C.J. QUIZ

by ROBERT F. BAHL



It pays to advertise . . . and it pays to read your advertisements if you want to make a good score on this month's CCJ QUIZ. Each question has a value of 10 points. 60-70 is fair; 70-80 good; 80-90 admirable; 90-100 excellent. Answers are on page 160.

## 1.

Have you noticed Studebaker truck ads lately? They're calling your attention to . . .

- a. Interstate trade barriers
- b. Congested traffic conditions on city streets
- c. Highway accidents
- d. The diversion of motor taxes to other than highway uses

## 2.

You wouldn't recognize your COMMERCIAL CAR JOURNAL if the front cover did not carry an ad for . . .

- a. GMC trucks
- b. Diamond T trucks
- c. FWD trucks
- d. Reo trucks

## 3.

This one's a piston. You have to identify all three slogans with the right piston ring manufacturers below to get any credit at all.

- a. "It's what goes on inside that counts"
- b. "Not 2, not 6, but 26 basic designs"
- c. "Soft pressure does it"

1. Hastings
2. Pedrick
3. Sealed Power

## 4.

You'll be right in tune if you can match up these radio programs with

their sponsors: (Add two points to your score each time you are correct.)

- a. Dick Haymes
- b. Andre Kostelanetz
- c. James Melton
- d. All-Girl Orchestra

1. Auto-Lite
2. Chrysler
3. General Electric
4. Texaco

## 5.

Without going back to the index to count them, can you give us an estimate of the number of advertisers in a typical issue of the COMMERCIAL CAR JOURNAL?

- a. 50
- b. 100
- c. 200
- d. 300

## 6.

Every quiz fan should know whose advertisements have been consisting of a page of questions on brakes each month. You're right, it's . . .

- a. Johns-Manville
- b. Bendix-Westinghouse
- c. Wagner Electric Co.
- d. Thermoid Co.

## 7.

Each of these phrases ought to remind you of some well-known make of truck: (You get a credit of two points for each correct name you insert.)

- a. "Follow the Leaders for They Know the Way"
- b. "Trucks for Every Purpose"
- c. "Known in Every Country—Sold on Every Continent"
- d. "Snow Fighters"
- e. "The Greatest Name in Trucks"

## 8.

After the trucks come the trailers. Score two points each time you match up the phrase with the correct trailer.

- a. "Engineered Transportation"
- b. "Homefolks' Service Centers"
- c. "Trade-Approved Trailers"
- d. "On Every U. S. Highway"
- e. "A Load Behind is a Trip Ahead"

1. American Bantam Car Co.
2. Fruehauf Trailer Co.
3. Highway Trailer Co.
4. Kingham Trailer Co.
5. Trailmobile

## 9.

Oil's well that ends well . . . but this hasn't ended yet, so you have to match up these trade names with the right manufacturer. Again, two points for each correct mating.

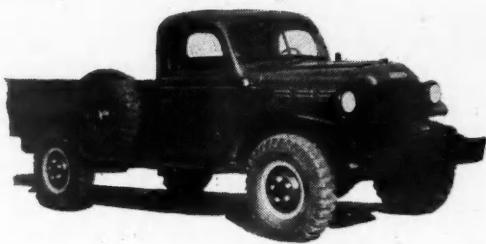
- a. Delvac
- b. Talpex
- c. Veedol
- d. Stanolube HD
- e. V.E.P. Oil-Plus

1. Ohio Oil Co.
2. Shell Oil Co.
3. Socony-Vacuum Oil Co.
4. Standard Oil Co. of Indiana
5. Tide Water Associated Oil Co.

## 10.

It's "time to re-tire" after you tell us whose slogan that is.

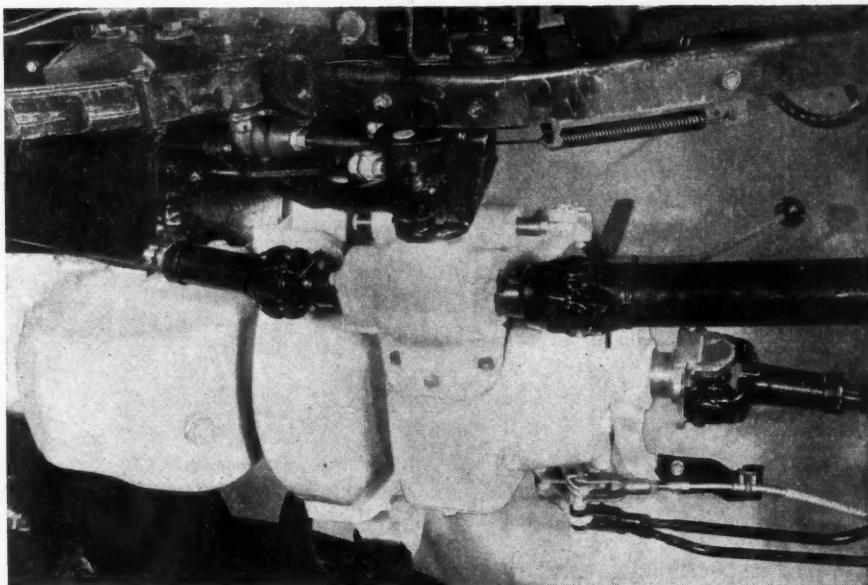
- a. General Tire and Rubber Co.
- b. Hood Rubber Co.
- c. Fisk Tire Co.
- d. Firestone Tire and Rubber Co.



## Dodge Offers 1-Ton Utility With 4-Wheel Drive, Power Take-Off

### A FEW FEATURES

Power plant: Dodge, L-head engine, 6-cyl., 3 $\frac{1}{4}$ -in. bore x 4 $\frac{1}{8}$ -in. stroke, 230.2 cu.-in.-displacement, rated at 94 bhp. maximum at 3200 r.p.m. Compression ratio, 6.7 to 1. Maximum torque, 185 ft. lb. at 1200 r.p.m. Equipped with Carter downdraft carburetor with an integral velocity type governor. G.v.w.: 8700 lb. and 7600 lb. Wheelbase: 126 in. Brakes: 4-wheel hydraulic. Power train: full floating hypoid type axles front and rear, 4-speed transmission, 2-speed transfer case.



*Power take-off. Front shaft drives winch. Rear shaft operates belt pulley at rear*

THE CIVILIAN version of the four-wheel drive Dodge military truck is an adaptation of the vehicle type proved in war service on 255,195 units produced by Dodge.

This newest addition to the job-rated truck line is a one-ton general purpose vehicle designed for off-the-highway operation and for service on unimproved roads, where trucks are normally restricted in their operation. Front and rear drive power take-off for operating the power winch mounted on the frame at the front, and a drive shaft at the rear for power driven auxiliary equipment or a pulley for belt operations are available. These items provide the versatility for application in many kinds of industrial, agricultural, public utility, and state highway uses.

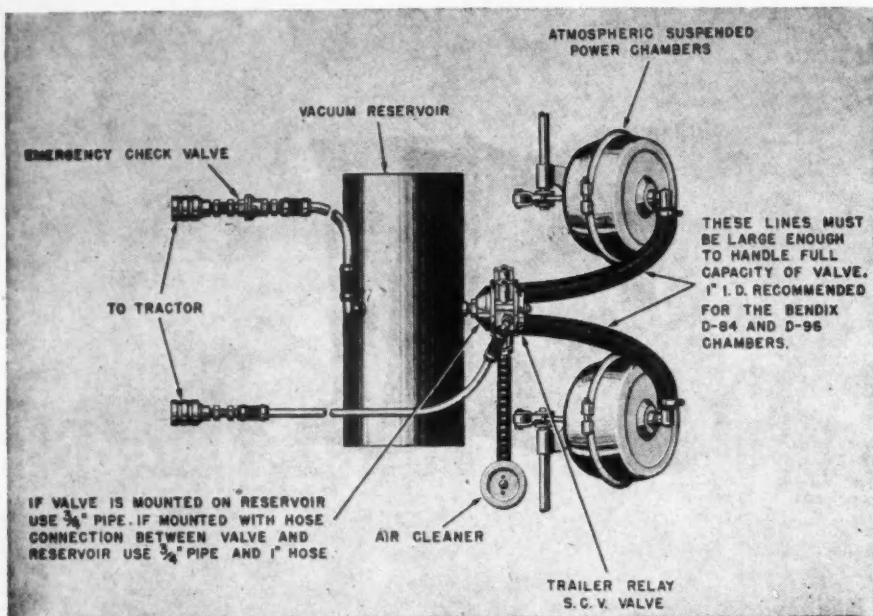
Known as the Model WDX General

**Offers variety of off-the-road uses. Available with front-mounted winch, belt pulley drive, draw bar, steel express body**

Purpose truck, it is mounted on a wheelbase of 126 in. and is available either as a chassis with closed cab or chassis with closed cab and steel express body. The steel body is 8 ft. long, 4 $\frac{1}{2}$  ft. wide, and 22 $\frac{1}{4}$  in. high with large size stake pockets. The frame is of double-drop construction

with side rail reinforcements. Heavy duty hydraulic telescopic shock absorbers are supplied at the front.

With 9.00 x 16, 8-ply tires, the maximum g.v.w. with accessories is 8700 lb.; the maximum payload is 3000 lb. With 7.50 x 16, 8-ply tires, (TURN TO PAGE 130, PLEASE)



Typical trailer installation of the Bendix SCV relay valve showing its location and proper size connecting lines between vacuum reservoir and atmospheric suspended power chambers

## Synchronizing Tractor-Trailer Brake Operation

**Basic checks and method of compensating for time lag when tractor vacuum power braking system is modernized**

THE IMPORTANCE of synchronizing tractor and trailer brake operation on vehicles equipped with vacuum power braking has long been recognized by engineers and practical fleet operators. The subject comes into new prominence today because of improvements in the operation of vacuum power brakes on tractors.

The season, too, is timely since bad winter weather produces road conditions where unbalanced braking is particularly undesirable. Regardless of whether anything has been done to modernize the tractor brake or not, synchronization of brakes between tractor and trailer should be checked at this time and needed corrective measures taken.

**Compensating for Time Lag**  
 WHEN improved vacuum power equipment is added to the brake system on the tractor, or new tractors are used with old trailers, there may be an appreciable time lag in the application of the trailer brakes with respect to the tractor. This results in the tractor doing more than its share of braking, increasing tractor brake maintenance, and generally unsatisfactory operation of the tractor-trailer combination from a brake standpoint. If the condition is severe, there will be a tendency to brake too hard, and a real hazard to safety is introduced.

Installation of a hand control valve, providing independent control of the trailer brakes, is, of course, a

means around the difficulty. We do not believe, however, the hand control valve should be installed indiscriminately as a means of compensating for inherent faults in the trailer braking system, although we are firm believers in the safety and economy value of hand control valve equipment. Such a valve provides the flexibility of operation required for holding the train in line on slippery surfaces, particularly where there is a down-grade. The foot pedal, even when a hand valve is installed on the vehicle, functions to apply brakes on both the tractor and trailer; the need for synchronization between the two vehicles, therefore, continues to exist. When the vacuum power braking equipment on the tractor is overhauled, or modernized by changing over to a faster operating hydraulic-vacuum unit such as the Bendix Hydrovac, it is highly advisable to check synchronization of the trailer brakes.

A vacuum-hydraulic power braking unit of this type very much improves the general operation of the tractor brakes, particularly with reference to speed of application and release. When this faster operation of the tractor brakes is combined with old equipment on the trailer, which might have been underpowered and may have never been too good, the whole problem of synchronizing the brakes of the two vehicles becomes critical, from the standpoint of economy and safety.

### Basic Checks

THE first thing is to be sure that the vacuum power brakes on the trailer are operating up to their original efficiency. Binding in mechanical levers or links, due to rust, dirt or misalignments; restrictions due to

(TURN TO PAGE 69, PLEASE)

## SYNCHRONIZING BRAKE OPERATION

(CONTINUED FROM PAGE 66)

collapsed hose or kinked tubing; leaks in fittings or connections—sticky, leaking or inadequate trailer valves, worn brake linings, damaged power chambers and worn valve parts—are among the things to look for.

### Fast Relay Valve

IT IS likely to be found, however, that the original trailer brake system is too slow to work satisfactorily with the improved tractor equipment. The remedy is to put a faster operating relay valve on the trailer. Such a valve has large ports and air passages which speed up brake application on the trailer so that the lag between the application of the brakes on the two vehicles is reduced to a minimum. A typical valve of this type is a new trailer valve manufactured by Bendix and identified in the B-K line as the SCV valve.

It is the function of the trailer relay valve to respond to the pressure differences in the control line connection with the tractor, but to do this with a minimum volume of air. The trailer valve functions as a relay in that it is operated by a small volume of air but provides passage for a relatively large volume of air to and from the power chambers. The trailer valve being located close to the trailer power chambers furnishes short passages for air between the secondary vacuum source (trailer reservoir) and the power chambers.

When such a larger capacity trailer valve is installed, it is important that the hose lines leading from the reservoir tank to the trailer valve, and from the trailer valve to the trailer power chambers, be large enough to handle the volume of air without restriction. There is no advantage in putting on a larger capacity, faster-acting trailer relay valve if the hose connections from that valve to the power chambers constitute a bottleneck that offset the advantages of the new valve. In the case of the largest size Bendix valve, the manufacturer recommends that the hoses from the reserve tank to the valve and from the valve to the power chambers be not less than 1 in. inside diameter for a typical installation.

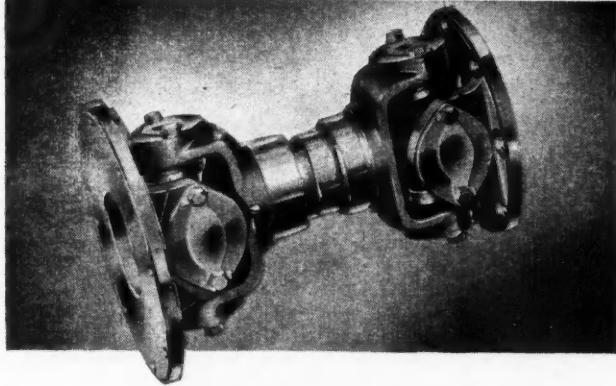
### Power Chamber Fitting

THE next point is to be sure that fitting leading into the power chamber has an inside diameter of not less than 1 in. It is obvious that a smaller fitting than this will in itself constitute a restriction. The rate of air flow into and out of the power chamber can be no faster than that permitted by the smallest cross-sectional area that occurs in the vacuum lines. It is another application of the old principle that a chain can be no stronger than its weakest link; that

is, a vacuum line can have no greater carrying capacity than that afforded at its smallest diameter.

On the larger installations a  $\frac{3}{4}$ -in. pipe thread in the power chamber will allow using a hose fitting that is adequate in air carrying capacity, when 1-in. inside diameter vacuum hose is used. It is reported that equipment is sometimes found on trailers on which the thread into the power chamber is too small to accommodate a large enough fitting, making it necessary to replace the chambers.

# Dependability



Blood Brothers Universal Joints are engineered for dependable power transmission under any terrain or load conditions.

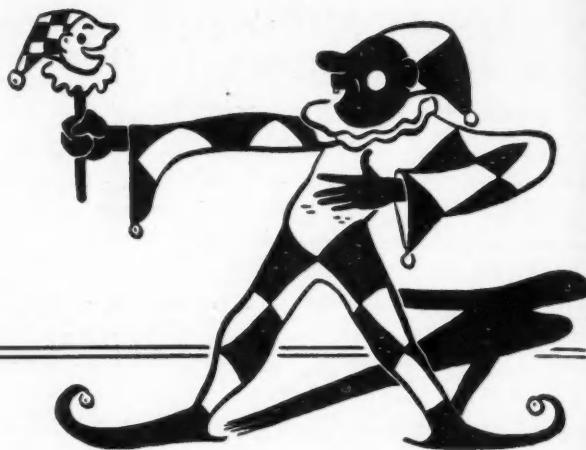
FREE ENGINEERING DATA:  
Write Dept. 16 for engineering bulletin and specifications on all Blood Brothers Universal Joints.

**BLOOD  
BROTHERS**  
**UNIVERSAL JOINTS**

BLOOD BROTHERS MACHINE CO.  
ALLEGAN, MICHIGAN  
DIV. STANDARD STEEL SPRING CO.

# LAUGH IT OFF

with SKAG SHANNON



Duffy, the Dispatcher, says, "Some girls will scream bloody murder at the sight of a mouse—then turn around and climb right into a truck with a wolf."

C C J

"Now, son," said the Traffic Manager. "Tell me what I punished you for."

"That's a fine howdy-do," blubbered the kid. "First you pound hell out of me and now you ask why you did it."

C C J



Tessie, the Interline Division Clerk, gives us the modern version of an old nursery rhyme: "Young Mother Hubbard went to the cupboard to get the ice man a bracer, but hubby came in and instead of the gin, the ice man got only the chaser."

C C J

The snow was falling softly. Poetically the Maintenance Superintendent spoke as he tucked the office typist into the car. "Winter draws on."

Typist: "Is it any business of yours whether my lingerie is seasonable?"

C C J

Sign in the truck driver's rooming house: Please Clean Tub  
After Bathing  
Landlady



Once upon a time a girl said to her girl friend, "How do you make love to a truck mechanic?"—and the answer was, "You don't! You just stand and defend yourself."

C C J

New Flame: "I'd like to give you a present. Which would you prefer—five dollars or a new brassiere?"

Old Dame: "Give me the five dollars. I'm flat busted."

This, according to Flo, the file clerk, is number one on the Wolf Parade: I'll be seizing you in all the old familiar places.

C C J

After reading about the bankrupt proceedings against his chief competitor, the Refrigerator Fleet Operator commented: "He 'highballed' up the ladder of success and hiccoughed his way down."

C C J

The Vice President in charge of operations announced a night course in rates for some of the company's young hopefuls. And upon being questioned advised that the instructor would be a famous lady expert on Traffic Management also noted for her glamour. This news was received most noisily and happily by all the prospective students. One of whom remarked, "Here is my opportunity to try out the following poetic procedure:

An apple for the teacher  
Is a routine for the fool.  
I'll bring mine Four Roses  
And hope she keeps me after school."

C C J

At a company dance, Pat, the Pickup Driver, cut in on Sadie, the Switchboard Operator, who was doing a hot jitterbug routine with one of the dock hands. After going into an old time fox trot, Pat timidly said, "Miss Sadie, if you would let me go out with you, I'd be putty in your hands."

"Call me up sometime when I have a lot of old windows to repair," quipped Sadie as she excused herself and made for the powder room.

C C J

Some husbands are wonderful. A trucker friend of ours has been married for twelve years and has never stopped being romantic. Of course, if his wife ever finds out about it, she'll break his neck.

Safety Steno: "Your new boy friend tells me he feels like he has known you a long time."

Safety Clerk: "He sure does!"

C C J



First Driver: "Of all the hard luck!"

Second Ditto: "Why, what's happened?"

F D: "Well, I went for a stroll with my girl friend this evening and her little brother persisted in following us."

S D: "How'd you make out?"

F D: "Had to just pick flowers."

C C J

As the girl firefly said to the boy firefly she had just jilted: "You glow your way and I'll glow mine."

C C J

Tommy, the trailer hook-up man, complains that his gal is as cold as a pair of old landing gears on a January morning, but he should remember that so is dynamite until you start fooling with it.

C C J



Mattie: "I caught my boy friend necking."

Hattie: "I caught mine that way, too."

C C J

Foreman: Did you hear what the angry father skunk said to his son?—"I'll cut you off without a scent."

RESUME WORK.

# STUDEBAKER TRUCKS HAVE IT!



## A new high in truck value and economy!

CONTROLLING the cost of motor truck transportation poses a serious problem these days to many a businessman. Some expenses obviously cannot be cut. But a lot of economy progress can be made by switching to Studebaker trucks.

All over the nation, you find more and more of America's most experienced truck users giving increasing attention to Studebaker's gas-saving, tire-saving engineering and repair-saving craftsmanship.

### Trucks of stand-out stamina

You've heard, of course, how Studebaker truck quality proved itself in wartime service. Nearly 200,000 rugged, heavy-duty Studebaker trucks successfully mastered some of the toughest transport problems in military history—in all parts of the world, in all kinds of weather, over all types of terrain.

And now the advantages of this dependable Stude-

baker truck quality go back into commercial service. In addition to the heavy-duty one-ton Studebaker that is pictured above, half-ton and one-ton pick-up trucks—as well as 1½-ton models in several wheelbases—are soon to be available.

See the nearest Studebaker dealer and see for yourself how much real transportation value Studebaker has packed into these new economy trucks. Each new Studebaker truck adds brilliant new luster to Studebaker's matchless 93-year reputation.

# Studebaker

South Bend 27, Indiana, U. S. A.

PIONEER AND PACESETTER  
IN AUTOMOTIVE PROGRESS

## Forecast of 1945 Truck Registrations

	1945	1944	Per Cent Change	Per Cent of 1945	Total 1944
Alabama	72,141	67,723	+ 6.52	1.56	1.50
Arizona	26,500	27,211	- 2.62	.57	.60
Arkansas	76,500	74,459	+ 2.74	1.65	1.65
California	358,140	327,375	+ 9.30	7.72	7.25
Colorado	75,412	70,524	+ 6.93	1.63	1.56
Connecticut	64,000	60,996	+ 5.09	1.38	1.35
Delaware	14,000	11,960	+ 17.05	.30	.28
District of Columbia	14,000	13,563	+ 3.22	.30	.30
Florida	98,000	88,053	+ 11.29	2.11	1.95
Georgia	103,500	97,553	+ 6.09	2.23	2.16
Idaho	36,000	35,533	+ 1.31	.78	.79
Illinois	222,128	216,930	+ 2.38	4.79	4.40
Indiana	147,200	137,252	+ 7.24	3.17	3.04
Iowa	101,400	98,373	+ 3.07	2.19	2.18
Kansas	124,059	121,819	+ 1.83	2.67	2.70
Kentucky	80,000	76,603	+ 4.43	1.72	1.70
Louisiana	73,000	72,015	+ 1.36	1.57	1.59
Maine	48,000	44,527	+ 7.79	1.04	.99
Maryland	58,500	51,872	+ 5.15	1.6	1.36
Massachusetts	109,000	103,606	+ 5.20	2.35	2.29
Michigan	122,315	118,174	+ 22.67	2.64	3.50
Minnesota	114,100	113,666	+ 0.38	2.46	2.52
Mississippi	54,000	55,387	- 2.47	1.18	1.23
Missouri	150,000	143,067	+ 4.26	3.23	3.18
Montana	47,650	45,950	+ 3.69	1.03	1.02
Nebraska	73,300	72,544	+ 0.62	1.57	1.60
Nevada	10,000	9,520	+ 5.04	.21	.21
New Hampshire	27,305	27,240	+ 0.23	.59	.60
New Jersey	141,275	138,937	+ 1.68	3.05	3.08
New Mexico	28,707	27,826	+ 3.18	.62	.62
New York	294,321	282,091	+ 4.33	6.36	6.24
North Carolina	98,279	93,063	+ 5.60	2.12	2.06
North Dakota	49,614	46,948	+ 5.68	1.07	1.04
Ohio	143,000	144,484	- 1.03	3.08	3.20
Oklahoma	105,000	102,383	+ 2.55	2.26	2.27
Oregon	89,000	77,773	+ 2.88	1.72	1.72
Pennsylvania	277,670	276,072	+ 0.57	5.99	6.11
Rhode Island	22,250	20,800	+ 6.97	.48	.46
South Carolina	51,367	45,701	+ 12.39	1.11	1.01
South Dakota	37,200	35,590	+ 4.52	.80	.79
Tennessee	76,000	73,650	+ 3.19	1.64	1.63
Texas	280,000	286,669	- 2.33	6.05	6.35
Utah	26,000	25,836	+ 0.63	.56	.57
Vermont	11,000	10,806	+ 1.79	.24	.24
Virginia	93,978	82,812	+ 13.34	2.03	1.84
Washington	103,782	96,168	+ 7.89	2.24	2.13
West Virginia	60,000	55,743	+ 7.63	1.29	1.23
Wisconsin	137,000	139,166	- 1.58	2.95	3.08
Wyoming	21,500	20,472	+ 5.02	.46	.45
Total	4,637,773	4,517,083	+ 2.68	100.00	100.00

## 1945 Truck Registrations

### Increase 120,000 Units

Total shows 2.68 per cent gain over '44.

California leads with 358,140, New York is next, Texas and Pennsylvania follow

by MARCUS AINSWORTH

Statistician, Commercial Car Journal

TOTAL truck registrations as of the end of 1945 showed a gain of approximately 120,000 units, or 2.68 per cent over those registered during 1944. This increase was dis-

tributed over 41 states and the District of Columbia, and ranged from the high of 17.05 per cent for the State of Delaware to the low of 0.38 per cent increase for the State of

Minnesota. Michigan indicated the greatest percentage loss of 22.67 while Ohio had the least decline of 1.03 per cent. Other states which recorded a decline in registrations were Arizona, Maryland, Mississippi, Texas and Wisconsin.

These facts were uncovered by the annual forecasts of truck registrations conducted by COMMERCIAL CAR JOURNAL, the results of which indicate that total truck registrations for 1945 were 4,637,773, as compared with 4,517,083 for 1944, and 4,825,978 for 1941, the peak year of truck registrations.

Forty-three states and the District of Columbia cooperated with COMMERCIAL CAR JOURNAL in preparing this survey. Actual returns were furnished in most cases through September 30, and were supplemented by their estimate for the remaining period of the year. A few of the states include buses with truck registrations, and one state, California, includes light commercial vehicles with passenger cars. However, in the case of this state we have transferred these light commercial vehicles numbering 118,000 for 1945 and 118,249 for 1944 from passenger car to truck registrations.

#### California Leads with 358,140

CALIFORNIA leads in the number of truck registrations with 358,140. New York is second in line with 294,321, followed by Texas with 280,000, and Pennsylvania with 277,670 units.

Eighteen states have registrations in excess of 100,000 units. These 18 states, while only 34.7 per cent of all states, account for 71.0 per cent of total U. S. registrations. The remaining 30 states and the District of Columbia have only 29.0 per cent of the total trucks registered.

#### Factors Contributing to Upswing

THERE are several factors which contribute to this upswing in truck registrations. First, approximately 191,000 trucks were built during the first nine months of 1945 for civilian use, and practically all of these were quickly absorbed. Second, the lifting of ODT restrictions

(TURN TO PAGE 154, PLEASE)

# TRUCK SPECIFICATIONS TABLE

## OF 1946 PRODUCTION MODELS

### DATA SUPPLIED BY MANUFACTURERS AND TABULATED BY COMMERCIAL CAR JOURNAL

## KEY TO DEFINITIONS, REFERENCES AND ABBREVIATIONS

### DEFINITIONS

#### MAKE AND MODEL

Only Domestic Truck Models are listed.

#### OPTIONAL UNITS

For the express purpose of best fitting the truck to the individual job, most of the models listed can be provided with optional engine, transmission, frame, etc., and these models when so equipped are considered standard stock models.

increase or decrease the gross vehicle weight rating when either favorable or unfavorable operating conditions are involved. Since the proper performance of a motor truck depends upon many factors including grades, road conditions etc., the gross weight that a manufacturer is prepared to recommend will vary with particular conditions, and the manufacturer's own standard of safety factors. Specific recommendations, therefore, should be obtained from the manufacturer's representative.

#### MINIMUM STANDARD WHEELBASE

The minimum standard wheelbase is the so-called standard wheelbase on which the Chassis List Price is based.

#### MAXIMUM STANDARD WHEELBASE

The maximum standard wheelbase is the extreme end of the standard range of wheelbases offered by the chassis maker.

#### CHASSIS WEIGHT

The chassis weight listed includes the weight of the minimum standard wheelbase chassis with new, with standard tires, with standard equipment, with crane and derrick system full, and 5 gallons of fuel in the tank. It does not include the weight of the Cab. This applies to C.O.E. as well as conventional chassis types. Exceptions are noted.

#### RECOMMENDED GROSS VEHICLE WEIGHT FOR NORMAL SERVICE

The Gross Weight published herewith are those supplied by manufacturers as their Recommended Gross Vehicle Weights for Normal Operating Conditions, and are based upon the Maximum Authorized Tire Size listed. In actual practice the manufacturer may either

Vehicle Weight for Normal Operating Conditions is furnished at extra cost if it differs from the standard size. Dual rear wheels are understood to mean two rear wheels. Single rear wheel performance of a motor truck depends upon many factors including grades, road conditions etc., the gross weight that a manufacturer is prepared to recommend will vary with particular conditions, and the manufacturer's own standard of safety factors. Specific recommendations, therefore, should be obtained from the manufacturer's representative. (2) International Harvester—Specifications shown represent only the basic standard chassis units and standard chassis ratings in keeping with definitions established by Commercial Car Journal. Optional units not shown such as engines, clutches, transmissions, axles or axle ratios, brakes, wheels and tires, frames or frame reinforcements, optional wheelbases or any other units which make up parts of the truck chassis and approve from the factory as optional equipment can or will change either the performance of the truck as indicated by which International will furnish and approve from the factory as optional equipment can or will change either the performance of the truck as indicated by this list.

Also the company reserves the privilege of assigning special gross vehicle ratings for any chassis provided in the opinion of our engineering department, the type of service justifies the new rating without decreasing the safety factor designed into the truck.

(A) — Available with Eaton Two-Speed Axle designated KS Models.

(B) Current models will include, at additional cost, optional items not otherwise considered standard equipment. These items are included in the specifications of our engineering department. The type of service justifies the new rating with the size transmission: Model K-3, overdrive engine and brakes; Model K-8, K-9, K-10, overdrive engine and brakes; Model K-11, overdrive engine and transmission; Models K-8F and K-11-F, overdrive engine and brakes.

(C) — Cab Forward design.

(D) — Cab-over-engine equipped.

(E) — Designed for tractor use only.

(F) — Converted for Ford or Chevrolet Model.

(G) — Chevrolet exceptions to definitions.

#### LIST PRICE

This is the list price of the basic vehicle. It does not include the additional charge as authorized by O.A. for synthetic tires delivered after April 18, 1944. Models other models equipped with six, normally standard size tires.

#### OPTIONAL UNITS

Chevrolet own rear axle (5:33:1) available at extra cost on models OR, OS and OW.

#### GROSS VEHICLE WEIGHT

Chevrolet own 2-speed rear axle (5:64-8.22) available at extra cost on models OH, OJ, OJ, OE, OF.

(H) — Hypoid.

(I) — Dual range axle.

(J) — Double Reduction.

(K) — Spiral Bevel.

(L) — Worm.

(M) — Semi-Floating.

(N) — Torque Tube.

Includes the weight of the cab on all c.e. models (OH-OJ-OJ).

#### TRACTORS

Unless given the designation (N)—meaning not available as a tractor—all standard models may be assumed to be available as tractors. Exclusively Tractor models are designated (T).

## KEY TO ABBREVIATIONS —

### MAKES—ALL

B—Bendix.  
BL—Brown-Lipe.  
Bu—Bud.  
Chevrolet.  
Cl or Cls—Clark.  
Co—Continental.  
Cum—Cummins-Diesel.  
EAT—Eaton.  
F—Ford.  
Fu—Fuller.  
H—Hotchkiss.  
Her—Hercules.  
L—Lockheed.  
LW—Lockheed front, Wagner "hi-Tor" rear.  
LW—Lockheed front, Wisconsin rear.  
M—Midland.  
N.P.—New Process.  
O or O—Own.  
Op or Opt—Optional.  
Sp—Spicer.  
T or Tim—Timken.  
W—Winkler Wisconsin.  
W—Wagner.  
W—Wau.  
W—Wau Wisconsin.  
W—Westinghouse.  
W—Westinghouse or Wagner.

### MAKES—SERVICE

Location  
—Four Wheels, front and rear.  
—Four Wheels, rear only.

### TYPE

Internal.  
External.

### OPERATION

Air.  
Hydraulic.  
Vacuum.

### BRAKES—HAND

Location  
—Center of double propeller shaft.  
—Rear wheels.  
—Four wheels.  
—Six wheels.

### FRAME

#### Type

Channel, reinforced with both inner and outer plates.  
Channel reinforced with plate, rear reinforced with inner.  
Drop Center.  
Side section side members, lined with oak inserts.

#### Gear Ratios

(\*\*) Only one ratio.

#### Drive and Torque

H—Hotchkiss (springs).  
L—Radius Rods.  
P—Parallel Torque Rods.  
T—Torque Arm.

### GOVERNOR STANDARD

Y—Yes.  
N—No.

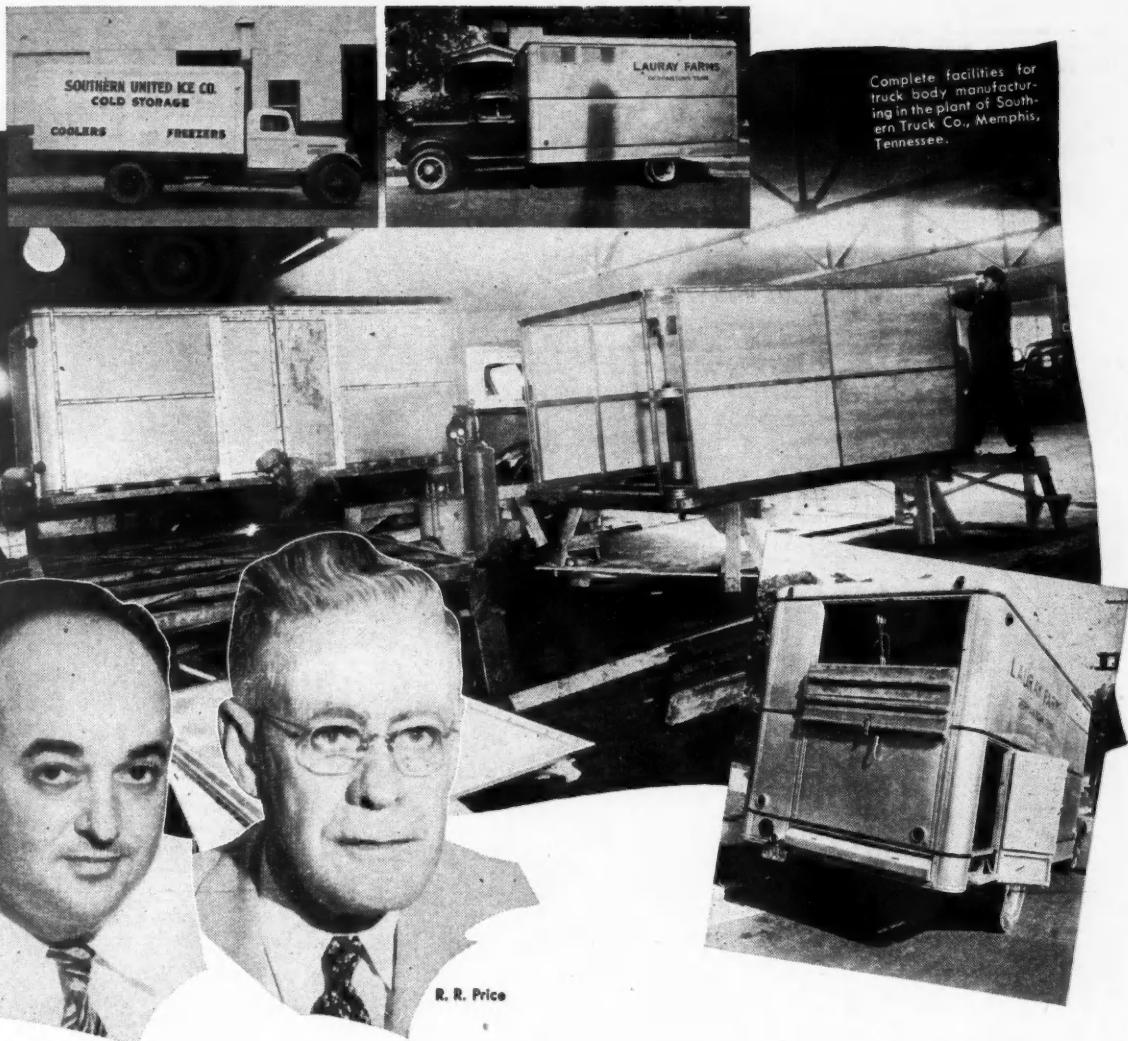
### REAR AXLE

2F—Forward unit of Rear Axle Group.  
2R—Rear Unit of Rear Axle Group.  
4R—Forward and rear units of Rear Axle Group.  
6—All wheels.

### WHEELS DRIVEN

2F—Forward unit of Rear Axle Group.  
2R—Rear Unit of Rear Axle Group.  
4R—Forward and rear units of Rear Axle Group.  
6—All wheels.

Liner Number	MAKE AND MODEL	WHEEL-BASE		TIRE SIZES		ENGINE DETAILS		TRANSMISSION		FRONT AXLE		REAR AXLE		BRAKES		FRAME		
		D-single rear	S-single rear	Standard	Maximum	Max. engine size	Stroke	Comp. Ratio	Mr. & R.P.M.									
1	Autocar... C-50	200	200	23000	9500	100/70	10.00/22	Own 377	Wau 377									
2	... C-50-1	148	164	23300	8930	100/70	10.00/22	Own 377	Wau 377									
3	... C-50	142	160	23300	8930	100/70	10.00/22	Own 377	Wau 377									
4	(c.o.e.)... U-501	196	196	23300	8930	100/70	10.00/22	Own 377	Wau 377									
5	... C-70	200	200	26000	9400	100/70	10.00/22	Own 447	Wau 447									
6	... C-70-S	248	248	26000	9400	100/70	10.00/22	Own 447	Wau 447									
7	(T)... C-70-T	148	164	28000	10100	100/70	11.00/22	Own 501	Wau 501									
8	(T)... C-70-FS	148	164	28000	10100	100/70	11.00/22	Own 501	Wau 501									
9	(T)... U-70	128	163	26000	10500	100/70	11.00/22	Own 447	Wau 447									
10	(T)... U-70S	112	112	26000	10500	100/70	11.00/22	Own 447	Wau 447									
11	(T)... U-70T	109	112	26000	10500	100/70	11.00/22	Own 447	Wau 447									
12	(T)... U-70FS	112	112	26000	10500	100/70	11.00/22	Own 447	Wau 447									
13	(T)... C-70	171	171	44000	13300	100/70	12.00/24	Own 501	Wau 501									
14	(T)... C-30-D	164	164	30000	10501	100/70	11.00/24	Own 501	Wau 501									
15	(T)... C-30-T	148	164	30000	10501	100/70	11.00/24	Own 501	Wau 501									
16	(T)... U-90	128	163	30000	11700	100/70	11.00/24	Own 501	Wau 501									
17	(T)... U-90T	109	109	30000	11700	100/70	11.00/24	Own 501	Wau 501									
18	(D)... DC-100	215	215	45000	13200	100/70	12.00/24	Cum HB600	Wau 621									
19	(D)... DC 100D	158	158	45000	13200	100/70	12.00/24	Cum HB600	Wau 621									
20	(D)... DC 100T	159	159	36000	12900	100/70	12.00/24	Cum HB600	Wau 621									
21	Available CS200-SP	126	133	15000	7000	70/70	7.00/20	Wau 6BM										
22	... CS250-SP	122	133	20000	19000	100/70	8.25/20	Wau 6BM										
23	... CS300-SP	122	133	20000	19000	100/70	9.00/20	Wau 6BM										
24	... CS400-1-SP	122	133	20000	19000	100/70	9.00/20	Wau 6BM										
25	... CS500-SP	122	133	20000	19000	100/70	9.00/20	Wau 6BM										
26	... CS550-SP	122	133	20000	19000	100/70	9.00/20	Wau 6BM										
27	... CS550-SPX	122	133	20000	19000	100/70	9.00/20	Wau 6BM										
28	... CS600-SP	140	160	30000	11000	100/70	11.00/24	Wau 6CK										
29	(D)... CS-600-SP	140	160	30000	11000	100/70	11.00/24	Wau 6CK										
30	(D)... CS-600-SP	140	160	30000	11000	100/70	11.00/24	Wau 6CK										
31	Brooklyn...	83	138	164	130000	32500	70/70	7.00/20	Wau 6BM	Wau 6BM								
32	... C-30	92	138	164	140000	4100	20000	8.25/20	Con 2BB	Con 2BB								
33	... C-30-T	92	138	164	140000	4100	20000	8.25/20	Con 2BB	Con 2BB								
34	... C-30-FS	94	138	164	140000	4100	20000	8.25/20	Con 2BB	Con 2BB								
35	... C-30	92	138	164	140000	4100	20000	8.25/20	Con 2BB	Con 2BB								
36	... C-30FS	92	138	164	140000	4100	20000	8.25/20	Con 2BB	Con 2BB								
37	... C-30	92	138	164	140000	4100	20000	8.25/20	Con 2BB	Con 2BB								
38	... C-30T	133	164	140000	4100	20000	8.25/20	Con 2BB										
39	... C-30FS	133	164	140000	4100	20000	8.25/20	Con 2BB										
40	... C-30	133	164	140000	4100	20000	8.25/20	Con 2BB										
41	... C-30T	133	164	140000	4100	20000	8.25/20	Con 2BB										
42	... C-30FS	133	164	140000	4100	20000	8.25/20	Con 2BB										
43	... C-30	133	164	140000	4100	20000	8.25/20	Con 2BB										
44	... C-30T	166	166	140000	4100	20000	8.25/20	Con 2BB										
45	... C-30FS	166	166	140000	4100	20000	8.25/20	Con 2BB										
46	... C-30	166	166	140000	4100	20000	8.25/20	Con 2BB										
47	... C-30T	166	166	140000	4100	20000	8.25/20	Con 2BB										
48	... C-30FS	166	166	140000	4100	20000	8.25/20	Con 2BB										
49	... C-30	166	166	140000	4100	20000	8.25/20	Con 2BB										
50	... C-30T	166	166	140000	4100	20000	8.25/20	Con 2BB										
51	... C-30FS	166	166	140000	4100	20000	8.25/20	Con 2BB										
52	... C-30	166	166	140000	4100	20000	8.25/20	Con 2BB										
53	Corbett (T)... 18TGT	158	193	219	25000	100/20	10.00/20	Con 3BB										
54	... 22TGT	158	193	219	25000	100/20	10.00/20	Con 3BB										
55	... 25TGT	158	193	219	25000	100/20												



Joseph F.  
Canepari

R. R. Price

Your Memphis, Tenn. *Ls Jim\** is twins—  
**JOE CANEPARI AND RAY PRICE**  
 of Southern Truck Company

R. R. Price and Joseph F. Canepari are the moving forces that make Southern Truck Company your friendly, dependable *Ls* Body Headquarters in Memphis, Tenn. Here you will find sound body building experience and complete manufacturing facilities backed by *Ls* mass production, and your neighbors, Ray and Joe, will take a personal interest in your individual problems.

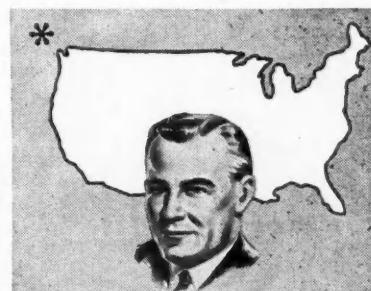
That is the advantage of the *Ls* plan. All over the country "*Ls Jim*s" are located where you need them for new all-steel bodies or for service. And only in their *Ls* bodies can you get the combination of individualized design, all-metal construction, high strength-weight ratio, and quick repair features that mean increased pay loads, increased hours on the road, and reduced operating costs.

National fleet operators can have identical bodies built locally anywhere in the country and can get quick service anywhere at any of the 151 *Ls* Builders. The Lindsay Corporation, Adams-Franklin Bldg., Chicago 6, Ill.; 60 E. 42nd St., New York 17, N. Y.; or Lindsay Structure (Canada) Ltd., Dominion Square Building, Montreal.

# LINDSAY

*Ls* STRUCTURE

U.S. Patents 2017629, 2263510, 2263511  
 U.S. and Foreign Patents and Patents Pending



There are 151 "*Ls Jim*s" throughout the country.  
 Do you know your local *Ls* dealer?

"Jim," a neighbor of yours, was chosen an *Ls* body builder because of his ability to handle your requirements intelligently—whether you need one or a thousand truck bodies.

Your "Jim" knows local conditions and regulations thoroughly and can design a body to meet your exact individual requirements. Unhampered by shipping problems, he makes speedy deliveries and does a quick factory repair job.

DISTRIBUTORS AND DEALERS THROUGHOUT THE COUNTRY

Line Number	MAKE AND MODEL	WHEEL-BASE	TIRE SIZES	ENGINE DETAILS				TRANSMISSION		REAR AXLE		FRONT AXLE		BRAKES		FRAME	
				Front and Rear Tires (See Definitions)	Front and Rear Suspension (See Definitions)	Front and Rear Brake Size in. (See Definitions)	Front and Rear Suspension (See Definitions)	Model and Type									
1	Corbitt Cont'd. • 2BBG	100	100/22	11.00/22	Con B6427	6-1/4x14	2276	1322	117-2600	7-24x13 1/2	Y FU 5A430	5 Tim 58415PA	SF	H	** -0-14	Tim 25100TW	W641A
2	Cont'd. • 2BBG	100	100/22	11.00/22	Con R643	6-1/4x14	573-9	15-2600	7-24x13 1/2	Y FU 5A430	5 Tim 58200PA	2F	H	** -0-12	Tim 25250TW	W641A	
3	Cont'd. • 2BBG	100	100/22	11.00/22	Her D4X	6-1/4x14	208-12	15-2600	7-24x13 1/2	Y FU 5A430	5 Tim 58670PA	2F	H	** -0-8	Tim 25300TW	W641A	
4	(D) • 2BBG	100	100/22	11.00/22	Her D4X	6-1/4x14	308-12	15-2600	7-24x13 1/2	Y FU 5A430	5 Tim 68415PA	2F	H	** -0-53	Tim 25300TW	W641A	
5	Diamond T-40HH	117	14700	8.25/20D	Her CBXG	6-3/4x14	245.5-9214	78-2800	7-24x10 1/2	Y WG T9A	4 Eat A35-1350	SF	H	** -0-14	Tim 25100TW	W641A	
6	Diamond T-40HH	117	14700	8.25/20D	Her CBXG	6-3/4x14	245.5-9214	78-2800	7-24x10 1/2	Y WG T9A	4 Eat A35-1350	SF	H	** -0-14	Tim 25100TW	W641A	
7	Diamond T-40HH	117	14700	8.25/20D	Her CBXG	6-3/4x14	245.5-9214	78-2800	7-24x10 1/2	Y WG T9A	4 Eat A35-1350	SF	H	** -0-14	Tim 25100TW	W641A	
8	Diamond T-40HH	117	14700	8.25/20D	Her CBXG	6-3/4x14	245.5-9214	78-2800	7-24x10 1/2	Y WG T9A	4 Eat A35-1350	SF	H	** -0-14	Tim 25100TW	W641A	
9	WXL-C-3	139	175	5000/8.25/20D	Her WXL-C-3	6-1/4x14	4045.5-9300	114-2800	7-24x13 1/2	Y Clia 270V	5 Eat A14-15001	SF	R	** -0-14	Tim 35100TW	W641A	
10	WXL-C-3	139	175	5000/8.25/20D	Her WXL-C-3	6-1/4x14	4045.5-9300	114-2800	7-24x13 1/2	Y Clia 270V	5 Eat A14-15001	SF	R	** -0-14	Tim 35100TW	W641A	
11	WXL-C-3	139	175	5000/8.25/20D	Her WXL-C-3	6-1/4x14	4045.5-9300	114-2800	7-24x13 1/2	Y Clia 270V	5 Eat A14-15001	SF	R	** -0-14	Tim 35100TW	W641A	
12	WXL-C-3	139	175	5000/8.25/20D	Her WXL-C-3	6-1/4x14	4045.5-9300	114-2800	7-24x13 1/2	Y Clia 270V	5 Eat A14-15001	SF	R	** -0-14	Tim 35100TW	W641A	
13	Dodge	116	4200	6.00/16	Own	6-3/4x14	276.8-172	55-3600	4-24x4 1/2	N NP	3 Own	O	H	** -0-14	Tim 25100TW	W641A	
14	Dodge	116	13500	6.00/20	Own	6-3/4x14	236.6-8190115	3800	4-24x4 1/2	N NP	4 Own	O	H	** -0-14	Tim 25100TW	W641A	
15	Dodge	116	13500	6.00/20	Own	6-3/4x14	236.6-8190115	3800	4-24x4 1/2	N NP	4 Own	O	H	** -0-14	Tim 25100TW	W641A	
16	Dodge	116	13500	6.00/20	Own	6-3/4x14	236.6-8190115	3800	4-24x4 1/2	N NP	4 Own	O	H	** -0-14	Tim 25100TW	W641A	
17	Dodge	116	13500	6.00/20	Own	6-3/4x14	236.6-8190115	3800	4-24x4 1/2	N NP	4 Eat	O	H	** -0-14	Tim 25100TW	W641A	
18	Dodge	116	13500	6.00/20	Own	6-3/4x14	236.6-8190115	3800	4-24x4 1/2	N NP	4 Eat	O	H	** -0-14	Tim 25100TW	W641A	
19	Dodge	116	13500	6.00/20	Own	6-3/4x14	236.6-8190115	3800	4-24x4 1/2	N NP	5 Own	O	H	** -0-14	Tim 25100TW	W641A	
20	Dodge	116	13500	6.00/20	Own	6-3/4x14	236.6-8190115	3800	4-24x4 1/2	N NP	5 Own	O	H	** -0-14	Tim 25100TW	W641A	
21	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
22	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
23	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
24	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
25	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
26	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
27	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
28	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
29	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
30	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
31	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
32	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
33	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
34	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
35	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
36	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
37	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
38	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
39	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
40	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
41	WHA45	136	16000	6.50/20	Own	6-3/4x14	250.5-8200	100-3800	4-24x5	Y NP	5 Eat	O	H	** -0-14	Tim 25100TW	W641A	
42	Duplex	136	18000	6000/7.50/20D	Her JXD	6-4x14	3206.2-240113	3000	7-24x10 1/2	Y FU 5B33	5 Tim 68410	2F	H	** -0-83	Tim 32500	L4HHV	
43	Duplex	136	18000	6000/7.50/20D	Her JXD	6-4x14	3206.2-240113	3000	7-24x10 1/2	Y FU 5B33	5 Tim 68415	2F	H	** -0-83	Tim 32500	L4HHV	
44	SAC-H	166	210	28000	9800/10/20D	Her RXC	6-1/4x5 1/2	539.5-435	12-2200	7-24x4 1/2	Y FU 5A20	5 Tim 8-200P	2F	R	** -0-83	Tim 25100	W641A
45	SAC-H	166	210	28000	10500/10/20D	Her RXC	6-1/4x5 1/2	539.5-435	12-2200	7-24x4 1/2	Y FU 5A20	5 Tim 8-200P	2F	R	** -0-83	Tim 25100	W641A
46	Federal	186	194	15000	4400	6-3/4x14	700-16-4	189	83-3000	7-24x10 1/2	Y WG T9	4 Tim 64410DP	SF	H	** -0-66	Tim 30003H	L4HHV
47	Federal	186	194	15000	4400	6-3/4x14	700-16-4	189	83-3000	7-24x10 1/2	Y WG T9	4 Tim 64410DP	SF	H	** -0-66	Tim 30003H	L4HHV
48	Federal	186	194	15000	4400	6-3/4x14	700-16-4	189	83-3000	7-24x10 1/2	Y WG T9	4 Tim 64410DP	SF	H	** -0-66	Tim 30003H	L4HHV
49	Federal	186	194	15000	4400	6-3/4x14	700-16-4	189	83-3000	7-24x10 1/2	Y WG T9	4 Tim 64410DP	SF	H	** -0-66	Tim 30003H	L4HHV
50	Federal	186	194	15000	4400	6-3/4x14	700-16-4	189	83-3000	7-24x10 1/2	Y WG T9	4 Tim 64410DP	SF	H	** -0-66	Tim 30003H	L4HHV
51	Federal	186	194	15000	4400	6-3/4x14	700-16-4	189	83-3000	7-24x10 1/2	Y WG T9	4 Tim 64410DP	SF	H	** -0-66	Tim 30003H	L4HHV
52	Federal	186	194	15000	4400	6-3/4x14	700-16-4	189	83-3000	7-24x10 1/2	Y WG T9	4 Tim 64410DP	SF	H	** -0-66	Tim 30003H	L4HHV
53	Federal	186	194	15000	4400	6-3/4x14	700-16-4	189	83-3000	7-24x10 1/2	Y WG T9	4 Tim 64410DP	SF	H	** -0-66	Tim 30003H	L4HHV
54	Federal	186	194	15000	4400	6-3/4x14	700-16-4	189	83-3000	7-24x10 1/2	Y WG T9	4 Tim 64410DP	SF	H	** -0-66	Tim 30003H	L4HHV
55	Federal	186	194	15000	4400	6-3/4x14	700-16-4	189	83-3000	7-24x10 1/2	Y WG T9	4 Tim 64410DP	SF	H	** -0-66	Tim 30003H	L4HHV
56	Federal	186	194	15000	4400	6-3/4x14	700-16-4	189	83-3000	7-24x10 1/2	Y WG T9	4 Tim 64410DP	SF				



## How we make our competitors' tires last longer

*A typical example of B. F. Goodrich development in rubber*

THE front wheels of a truck should tilt a little, like this    when standing still. They should not be perfectly vertical, like this  or have an unequal slant, like this . With the right tilt to start with, the wheels will be vertical when in motion. If they are not, steering is difficult, tires wear out rapidly. In the picture a B. F. Goodrich man is checking this tilt, or "camber", with a special device. He makes sure that it is exactly as recommended by the truck manufacturer.

Truck owners know that checks like this should be made regularly. This and dozens of similar ones. But some were invariably overlooked. As a result it was recently estimated that 9 out of

10 truck tires delivered less than their full mileage.

To solve this problem B. F. Goodrich organized a scientific program under which factory-trained tire men take over the complete supervision of tire maintenance for truck fleet operators. These men check everything that might affect tire life. The service is not limited to B. F. Goodrich tires. Mileages of competitors' tires are increased along with our own.

Here's what one user says: "We have been using the B. F. Goodrich Tire Conservation Program for approximately one and a half years and during this time our tire costs per mile have constantly decreased." Another writes: "We have never experienced any delay

in the operation of the 67 units in our fleet traceable to tire failure." And another, "In six months we figured a one-third increase in our tire mileage."

This program is a typical example of the results of research which goes on constantly at B. F. Goodrich. Research applied to tires for every purpose. If you own a fleet and would like to have more information about the truck tire preventive maintenance plan, write *The B. F. Goodrich Company, Room 251, Akron, Ohio*.

*Truck Tires*   
**B. F. Goodrich**

MAKE AND MODEL	LINE NUMBER	WHEEL- BASE	TIRE SIZES		ENGINE DETAILS				TRANS- MISSION		FRAME				
			D-dual rear S-dual rear	Front Rear	Front RPM	Revs per min.	Main Bearings	Front RPM	Revs per min.	Model	Model	Side Rail Dimensions (Min. Sec. W., R.)	Type		
1 Kenworth(D) 521	150	205	3:000	12.00	10.00/20	11.00/22	Cum NHB6	6-51x46	743.17	533-300-2100	7-41/16 1/2	Y FU 7841	DR H 42-7-8, Tim 36000		
2 Reo.....19BHS	145	145	14000	4340	5.25/200	8.25/20	Cum GIC245	6-3-154	245.6	2191	80-3100	7-24/16 10 6	Y FU 155F	4 Tim 94427	
3.....19CHS	145	145	14000	4265	7.50/200	8.25/20	Own GIC245	6-3-154	245.6	2191	80-3100	7-24/16 10 6	Y FU 155F	2 SF H 06-8 12 Tim 30000	
4.....19CHS	145	145	14000	4428	8.25/200	8.25/20	Own GIC245	6-3-154	245.6	2191	80-3100	7-24/16 10 6	Y FU 155F	2 SF H 06-8 12 Tim 30000	
5.....15000	145	145	15000	5164	8.75/25	200	Own GIC285	6-3-154	286.6	2221	94-3000	7-24/16 10 6	Y FU 155F	4 Tim 94412	
6.....15000	130	130	15000	4938	8.25/200	8.25/20	Own GIC285	6-3-154	286.6	2221	94-3000	7-24/16 10 6	Y FU 155F	4 Tim 94412	
7.....20XHS	130	130	15000	4822	8.25/200	8.25/20	Own GIC285	6-3-154	286.6	2221	94-3000	7-24/16 10 6	Y FU 155F	4 Tim 94427	
8.....20XHS	130	130	15000	4822	8.25/200	8.25/20	Own GIC285	6-3-154	286.6	2221	94-3000	7-24/16 10 6	Y FU 155F	4 Tim 94427	
9.....25XHS	145	145	14000	7635	10.00/200	10.00/200	Con 6127	6-4-14x4	427.6	1322	121-2600	7-24/16 10 6	Y FU 205F	5 Tim 96000	
10.....25XHS	145	145	14000	7635	10.00/200	10.00/200	Con 6127	6-4-14x4	427.6	1322	121-2600	7-24/16 10 6	Y FU 205F	5 Tim 96000	
11 Sterling.....HD115	155	185	32000	10200	10.00/200	11.00/200	Con R6513	6-4-14x5	519.6	9400	150-2600	7-31/14 6	Y FU 5A921	5 Tim 82000P	
12.....HC115	170	170	32000	10200	10.00/200	11.00/200	Wau GSR600	6-4-14x5	517.5	935.6	125-2250	7-31/14 6	Y FU 5A921	5 Tim 82000P	
13.....(D).....HC144	155	175	32000	10200	10.00/200	11.00/200	Wau GSR600	6-4-15x6	672.6	1150	1800	7-31/14 6	Y FU 5A921	5 Tim 82000P	
14.....(D).....HC144	155	175	32000	10200	10.00/200	11.00/200	Wau GSR600	6-4-15x6	672.6	1150	1800	7-31/14 6	Y FU 5A921	5 Tim 82000P	
15.....(D).....HC147	155	175	32000	10200	10.00/200	11.00/200	Wau GSR600	6-4-15x6	672.6	1150	1800	7-31/14 6	Y FU 5A921	5 Tim 82000P	
16.....(D).....HC156	155	175	32000	10200	10.00/200	11.00/200	Wau GSR600	6-4-15x6	672.6	1150	1800	7-31/14 6	Y FU 5A921	5 Tim 82000P	
17.....(D).....HC165	155	175	32000	10200	10.00/200	11.00/200	Wau GSR600	6-4-15x6	672.6	1150	1800	7-31/14 6	Y FU 5A921	5 Tim 82000P	
18.....(D).....HC165H	165	175	40000	13200	10.00/200	11.00/200	Wau GSR600	6-4-15x6	672.6	1150	1800	7-31/14 6	Y FU 5A921	5 Tim 82000P	
19.....(D).....HC175H	165	175	45000	14000	10.00/200	11.00/200	Wau GSR600	6-4-15x6	672.6	1150	1800	7-31/14 6	Y FU 5A921	5 Tim 82000P	
20.....(D).....HC175H	165	175	45000	14000	10.00/200	11.00/200	Wau GSR600	6-4-15x6	672.6	1150	1800	7-31/14 6	Y FU 5A921	5 Tim 82000P	
21 Stewart.....47B	134	224	19300	3107	5.00/20	6.25/20	Wau 612B	6-3-15x4	292.5	7175	77-2800	7-24/10 10 4	Y FU 5A921	2 Tim 77-2800	
22.....(2 spd. Raxie)M16	140	228	22000	3107	5.00/20	6.25/20	Wau 612B	6-3-15x4	292.5	7175	77-2800	7-24/10 10 4	Y FU 5A921	2 Tim 77-2800	
23.....(2 spd. Raxie)M16	140	228	22000	3107	5.00/20	6.25/20	Wau 612B	6-3-15x4	292.5	7175	77-2800	7-24/10 10 4	Y FU 5A921	2 Tim 77-2800	
24.....(2 spd. Raxie)M16	140	228	22000	3107	5.00/20	6.25/20	Wau 612B	6-3-15x4	292.5	7175	77-2800	7-24/10 10 4	Y FU 5A921	2 Tim 77-2800	
25.....(2 spd. Raxie)M16	140	228	27000	3265	5.00/20	6.25/20	Wau 612B	6-3-15x4	292.5	7175	77-2800	7-24/10 10 4	Y FU 5A921	2 Tim 77-2800	
26 Studebaker.....M5	130	113	4300	1970	5.00/165	6.50/165	Own 1M	6-3x4	170.6	5134	80-1000	4-24/5 5	Y FU 5A921	3 Tim 82000P	
27.....M15-28	130	120	7800	2300	9.00/175	10.50/175	Own 2M	6-3x4	170.6	5134	80-1000	4-24/5 5	Y FU 5A921	3 Tim 82000P	
28.....M15-28	130	120	7800	2300	9.00/175	10.50/175	Own 2M	6-3x4	170.6	5134	80-1000	4-24/5 5	Y FU 5A921	3 Tim 82000P	
29.....(2 spd. Raxie)M16	128	128	19300	3107	5.00/20	6.25/20	Wau 612B	6-3-15x4	292.5	7175	77-2800	7-24/10 10 4	Y FU 5A921	2 Tim 77-2800	
30.....(2 spd. Raxie)M16	128	128	19300	3107	5.00/20	6.25/20	Wau 612B	6-3-15x4	292.5	7175	77-2800	7-24/10 10 4	Y FU 5A921	2 Tim 77-2800	
31.....Truckstell(C) F18-5	140	194	18300	5265	7.50/20	8.00/20	10.00/20	Con 22R	6-3-18x3	2396.7	1972	10-3800	2-24/5 5	Y FU 5A921	3 Tim 82000P
32.....(C).....C18-5	144	194	18300	5265	7.50/20	8.00/20	10.00/20	Con 22R	6-3-18x3	2396.7	1972	10-3800	2-24/5 5	Y FU 5A921	3 Tim 82000P
33 Ward La. Fr. ....D-1	4250	149	220	25000	9500	10.00/20	10.00/20	Con B6427	6-4-4x4	427.6	11325	12/1000	4-24/5 5	Y FU 5A921	3 Tim 82000P
34.....D-1	4250	149	220	25000	9500	10.00/20	10.00/20	Con B6427	6-4-4x4	427.6	11325	12/1000	4-24/5 5	Y FU 5A921	3 Tim 82000P
35.....D-2	4250	149	220	25000	9500	10.00/20	10.00/20	Con B6427	6-4-4x4	427.6	11325	12/1000	4-24/5 5	Y FU 5A921	3 Tim 82000P
36.....D-3	4250	149	220	25000	9500	10.00/20	10.00/20	Con B6427	6-4-4x4	427.6	11325	12/1000	4-24/5 5	Y FU 5A921	3 Tim 82000P
37.....D-4	4250	149	220	25000	9500	10.00/20	10.00/20	Con B6427	6-4-4x4	427.6	11325	12/1000	4-24/5 5	Y FU 5A921	3 Tim 82000P
38.....D-5	4250	149	220	25000	9500	10.00/20	10.00/20	Con B6427	6-4-4x4	427.6	11325	12/1000	4-24/5 5	Y FU 5A921	3 Tim 82000P
39.....FD-1	140	194	18300	5265	7.50/20	8.00/20	10.00/20	Con R702	6-4-4x4	672.1	1700	10-3800	2-24/5 5	Y FU 5A921	3 Tim 82000P
40.....FD-1	140	194	18300	5265	7.50/20	8.00/20	10.00/20	Con R702	6-4-4x4	672.1	1700	10-3800	2-24/5 5	Y FU 5A921	3 Tim 82000P
41.....FD-2	140	194	18300	5265	7.50/20	8.00/20	10.00/20	Con R702	6-4-4x4	672.1	1700	10-3800	2-24/5 5	Y FU 5A921	3 Tim 82000P
42 Corbit.....18FG	Opt 18000	6500	8.25/20	9.00/20	10.00/20	11.00/22	Con M6330	6-4-4x4	330.5	7240	10-2800	7-24/11 12	Y FU 5A921	5 Tim 54100H	
43.....18FG	Opt 18000	6500	8.25/20	9.00/20	10.00/20	11.00/22	Con M6330	6-4-4x4	330.5	7240	10-2800	7-24/11 12	Y FU 5A921	5 Tim 54100H	
44.....22FG	Opt 25000	10000	10.00/20	11.00/22	11.00/22	Con R6602	6-4-4x5	531.5	9400	1652600	7-31/14 5	Y FU 5A921	5 Tim 54100H		
45.....28FG	Opt 28000	10000	10.00/20	11.00/22	11.00/22	Con R6602	6-4-4x5	531.5	9400	1652600	7-31/14 5	Y FU 5A921	5 Tim 54100H		
46.....FWD	144	144	17000	7770	2.25/20	8.25/20	10.00/20	Wau MZB	6-4-4x4	404.5	7250	10-2500	7-24/11 12	Y FU 5A921	5 Tim 54100H
47.....FWD	144	144	17000	7770	2.25/20	8.25/20	10.00/20	Wau MZB	6-4-4x4	404.5	7250	10-2500	7-24/11 12	Y FU 5A921	5 Tim 54100H
48.....FWD	144	144	17000	7770	2.25/20	8.25/20	10.00/20	Wau MZB	6-4-4x4	404.5	7250	10-2500	7-24/11 12	Y FU 5A921	5 Tim 54100H
49.....FWD	144	144	17000	7770	2.25/20	8.25/20	10.00/20	Wau MZB	6-4-4x4	404.5	7250	10-2500	7-24/11 12	Y FU 5A921	5 Tim 54100H
50.....FWD	144	144	17000	7770	2.25/20	8.25/20	10.00/20	Wau MZB	6-4-4x4	404.5	7250	10-2500	7-24/11 12	Y FU 5A921	5 Tim 54100H
51.....FWD	144	144	17000	7770	2.25/20	8.25/20	10.00/20	Wau MZB	6-4-4x4	404.5	7250	10-2500	7-24/11 12	Y FU 5A921	5 Tim 54100H
52.....Marmon- Herr.....M5	6825	158	158	158	158	158	10.00/20	Her RXC	6-4-4x4	404.5	7250	10-2500	7-24/11 12	Y FU 5A921	5 Tim 54100H
53.....Marmon- Herr.....M5	6866	134	134	134	134	134	10.00/20	Her RXC	6-4-4x4	404.5	7250	10-2500	7-24/11 12	Y FU 5A921	5 Tim 54100H
54.....Marmon- Herr.....M5	6866	134	134	134	134	134	10.00/20	Her RXC	6-4-4x4	404.5	7250	10-2500	7-24/11 12	Y FU 5A921	5 Tim 54100H
55.....Marmon- Herr.....M5	6866	134	134	134	134	134	10.00/20	Her RXC	6-4-4x4	404.5	7250	10-2500	7-24/11 12	Y FU 5A921	5 Tim 54100H
56.....Marmon- Herr.....M5	6866	134	134	134	134	134	10.00/20	Her RXC	6-4-4x4	404.5	7250	10-2500	7-24/11 12	Y FU 5A921	5 Tim 54100H
57.....Marmon- Herr.....M5	6866	134	134	134	134</										

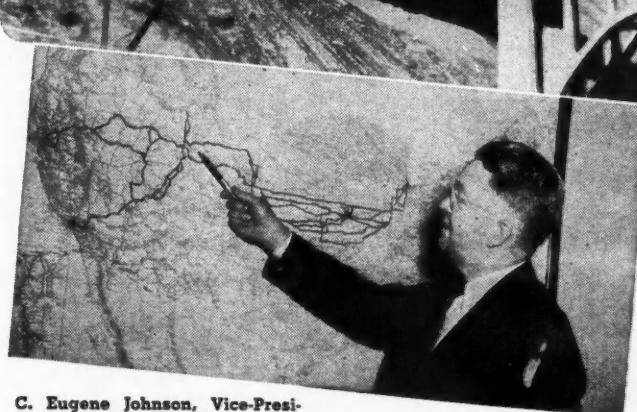


## A Company Is Known by the Customers It KEEPS!

OVER STEEP mountain grades . . . across sweltering deserts . . . through busy city streets, the Fruehaufs in this Western fleet lick height, heat and hurry—helped the company build up a business from \$85,000 to almost \$500,000 monthly in just four years.

Pacific Intermountain Express began their operation in 1940. Their business zoomed to the second largest truck line operating as a common carrier west of Chicago. Today, they transport approximately 1,000,000 pounds of freight daily.

The home office is in Salt Lake City. Their fleet provides direct service to Chicago, St. Louis, Kansas City, Wichita, Denver, and the Pacific Coast. Other principal terminals are located in San Francisco,



C. Eugene Johnson, Vice-President and General Manager of Pacific Intermountain Express, points to some of the routes served by their Fruehaufs.

Los Angeles, Oakland, Sacramento, Reno, Ogden, and Pocatello.

149 Fruehauf Trailers are pulled by 95 heavy-duty diesel tractors. The equipment has been the main factor in building this line over gruelling routes. So satisfactory has it proved that P. I. E. has now on order an additional 75 Fruehauf Trailers.

This is another striking example of how companies like P. I. E., the professional haulers of America, who depend upon their rolling equipment for their entire earnings, buy Fruehaufs again and again.



World's Largest Builders of Truck-Trailers

**FRUEHAUF TRAILER CO., DETROIT 32**

Service in Principal Cities



"ENGINEERED  
TRANSPORTATION"

REG. U. S. PAT. OFF.

# FRUEHAUF TRAILERS

Line Number	MAKE AND MODEL	WHEEL BASE		TIRE SIZES		ENGINE DETAILS				TRANSMISSION		REAR AXLE		FRONT AXLE		BRAKES		FRAME	
		Standard		Maximum		Tires Single rear		Tires Double rear		Main Bearings		Model End		Model End		Model End		Type	
		Standard		Less than 1000 lbs.		Tires Single rear		Tires Double rear		Main Bearings		Model End		Model End		Model End		CD	
<b>Six-Wheelers</b>																			
10	Autocar	Wheels Driven	▼	206	40000	143700	10,000/20	10,000/20	Cum HB600	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	L	**-6.16 Tim 27454	CD	117 1/4 x 3/4 LTI
11	(D) DC1008-4R	Chassis Weight	▼	126	150	24000	75000/20D	10,000/20D	Wau MZR	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	L	**-10.01 Tim 27454	CD	117 1/4 x 3/4 LTI
12	(D) DC1004S-4R	Chassis Weight	▼	126	150	3000	10,000/20D	12,000/20D	Wau MZR	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	L	**-10.01 Tim 27454	CD	117 1/4 x 3/4 LTI
13	Corbitt	35RG	▼	35000	10,000/20	10,000/20	Con R6427	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	L	**-6.45 Tim 350007TW	W66IA	1094/8		
14	...	40RG	▼	40800	10,000/20	10,000/20	Con R6602	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	L	**-8.45 Tim 351007TW	W66IA	1367/8		
15	...	408G	▼	40800	10,000/20	10,000/20	Con R6513	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	L	**-8.45 Tim 351007TW	W66IA	1302/8		
16	...	508D6	▼	50000	10,000/20	11,000/20	Her HXD	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	L	**-8.35 Tim 351007TW	W66IA	1626/8		
17	Diamond T	1750	▼	40000	13750	10,000/22D	10,000/22D	Her RXLC	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	R	**-7.50 Tim 369207TW	W66IA	1082/8	
18	(D) 9000D3000PA	1750	▼	40000	13750	10,000/22D	10,000/22D	Cum HB600	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	R	**-6.07 Tim 369207TW	W66IA	1082/8	
19	(D) 9100SW3002PA	1750	▼	40000	13750	10,000/22D	10,000/22D	Cum HB600	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	R	**-10.15 Tim 369207TW	W66IA	1082/8	
20	(D) 9105D142SW	1750	▼	40000	13750	10,000/22D	10,000/22D	Cum HB600	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	R	**-10.15 Tim 369207TW	W66IA	1082/8	
21	F.W.D. M6x6	24000	▼	243	58000	214400	11,000/24D	11,000/24D	Her HXE	6-5/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-8.15 WIS F409	W66IA	160/80 G
22	(D) M6x6	24000	▼	243	58000	214400	11,000/24D	11,000/24D	Her HXE	6-5/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-8.15 WIS F409	W66IA	160/80 G
23	International	24000	▼	204	40000	13750	10,000/22D	10,000/22D	Her RXLC	6-3 1/4 x 5	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.16 Tim F409	W66IA	160/80 G
24	(D) 9000D3000PA	24000	▼	204	40000	13750	10,000/22D	10,000/22D	Cum HB600	6-3 1/4 x 5	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.16 Tim F409	W66IA	160/80 G
25	(D) 9100SW3002PA	24000	▼	204	40000	13750	10,000/22D	10,000/22D	Cum HB600	6-3 1/4 x 5	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.16 Tim F409	W66IA	160/80 G
26	(D) 9105D142SW	24000	▼	204	40000	13750	10,000/22D	10,000/22D	Cum HB600	6-3 1/4 x 5	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.16 Tim F409	W66IA	160/80 G
27	Kenworth	524 4R	▼	243	58000	214400	11,000/24D	11,000/24D	Cum NHB66	6-5/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	R	**-6.07 Tim 369000	W66IA	102/4248A
28	...	525 4R	▼	243	58000	214400	11,000/24D	11,000/24D	Cum NHB66	6-5/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	R	**-6.07 Tim 369000	W66IA	102/4248A
29	...	526 4R	▼	243	58000	214400	11,000/24D	11,000/24D	Cum NHB66	6-5/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	R	**-6.07 Tim 369000	W66IA	102/4248A
30	...	527 4R	▼	243	58000	214400	11,000/24D	11,000/24D	Cum NHB66	6-5/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	R	**-6.07 Tim 369000	W66IA	102/4248A
31	...	528 4R	▼	243	58000	214400	11,000/24D	11,000/24D	Cum NHB66	6-5/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	R	**-6.07 Tim 369000	W66IA	102/4248A
32	...	529 4R	▼	243	58000	214400	11,000/24D	11,000/24D	Cum NHB66	6-5/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	R	**-6.07 Tim 369000	W66IA	102/4248A
33	Marmon-Herr.	K-6-F	▼	151	194	23000	67500	7700/20	Own BLD250	6-3 1/4 x 5	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.16 Tim F409	W66IA	160/80 G
34	(C) K-8-F	...	▼	151	215	25000	67500	7700/20	Own BLD250	6-3 1/4 x 5	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.16 Tim F409	W66IA	160/80 G
35	(C) K-11-F	...	▼	151	236	25000	67500	7700/20	Own BLD250	6-3 1/4 x 5	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.16 Tim F409	W66IA	160/80 G
36	(C) K-11-F	...	▼	151	236	25000	67500	7700/20	Own BLD250	6-3 1/4 x 5	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.16 Tim F409	W66IA	160/80 G
37	Peterbilt	344D DT	▼	11415	189	43000	16500	10,000/22D	Cum HB600	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.07 Tim 369000	W66IA	108/12734A
38	(D) 345DT	11415	189	43000	16500	10,000/22D	10,000/22D	Cum HB600	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.07 Tim 369000	W66IA	108/12734A	
39	(D) 355DT	11415	189	43000	16500	10,000/22D	10,000/22D	Cum HB600	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.07 Tim 369000	W66IA	108/12734A	
40	(D) 355DT	12575	187	43000	16500	10,000/22D	10,000/22D	Cum HB600	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.07 Tim 369000	W66IA	108/12734A	
41	Sterling	2790	156	225000	66737	7700/20	Ford	6-3 1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.07 Tim 369000	W66IA	108/12734A		
42	(D) HW8160H	2822	180	225000	66710	7700/20	Ford	6-3 1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.07 Tim 369000	W66IA	108/12734A		
43	(D) HD8160H	2822	180	225000	66710	7700/20	Ford	6-3 1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.07 Tim 369000	W66IA	108/12734A		
44	(D) HD8160H	2822	180	225000	66710	7700/20	Ford	6-3 1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.07 Tim 369000	W66IA	108/12734A		
45	(D) HD8160H	2822	180	225000	66710	7700/20	Ford	6-3 1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.07 Tim 369000	W66IA	108/12734A		
46	(D) HD8160H	2822	180	225000	66710	7700/20	Ford	6-3 1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.07 Tim 369000	W66IA	108/12734A		
47	(D) HW8235H	195	236	42000	16500	10,000/22D	10,000/22D	Cum HB600	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.07 Tim 369000	W66IA	108/12734A	
48	(D) HW8235H	195	236	42000	16500	10,000/22D	10,000/22D	Cum HB600	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.07 Tim 369000	W66IA	108/12734A	
49	(D) HW8235H	195	236	42000	16500	10,000/22D	10,000/22D	Cum HB600	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.07 Tim 369000	W66IA	108/12734A	
50	(D) HW8235H	195	236	42000	16500	10,000/22D	10,000/22D	Cum HB600	6-1/4 x 6	67217	500150-1800/7-4/15/15	YBL771-703A	12 Tim SW3002W	WF	H	**-6.07 Tim 369000	W66IA	108/12734A	

**Smoke Test shows why**



**Ordinary Disc Wheel**—Note that the smoke (representing air currents) strikes disc and rebounds without circulating through wheel.



**Dayton Wheel**—See how the smoke is drawn inward through the arches of the wheel to cool the brake drums and inner walls of the tires.

# Dayton Wheels

**RUN 47° COOLER!**

TESTS CONDUCTED by a leading tire manufacturer prove conclusively that Dayton Spoke Type Dual Wheels actually run 47° cooler than ordinary disc wheels—a tremendous factor in the conservation of heavy-duty tires and brake lining.

These tests required the use of scientific laboratory equipment to measure temperatures accurately, but you can use just two smoke pots to see with your own eyes *why* Dayton Wheel design makes such a difference. Even your cigar or cigarette will do. You can see how the spokes and spacer band draw cool air currents and direct them against brake drums and inner walls of the inside tires. And the faster the wheels run the greater the cooling action.

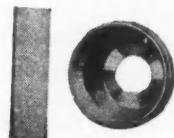
Increased pressure on the clamp bevel of the demountable wheels further protects tires by preventing rim slippage and uneven tire wear. The rims also speed tire changing. Although Dayton Wheels are so strong they never wear out in service, they are lighter than other wheels, the demountable rim type design saving the weight of an extra wheel.

Specify Dayton Wheels for new equipment and replacements.

**The Dayton Steel Foundry Co.      Dayton, Ohio**  
★ 40 Years in Business ★

# Dayton SPOKE TYPE CAST STEEL Wheels

Dayton wheels are used on: **TRUCKS**—Autocar, Mack, International Harvester, Gramm, Federal, Studebaker, White. • **TRAILERS**—Freightliner, Trailmobile, Gramm, Kingham, Edwards, Brown. • **BUSES**—Brill, Mack, Pullman.



**Dayton Brake Drums**  
Drums assembled to  
the wheels at the fac-  
tory give more perfect  
concentricity.



**Dayton 5th Wheels**  
Standard equip-  
ment on many  
trailers. Quick  
coupling. Posi-  
tive operation.



**Dayton Landing Gears**  
Made in both hydraulic  
and mechanical types.

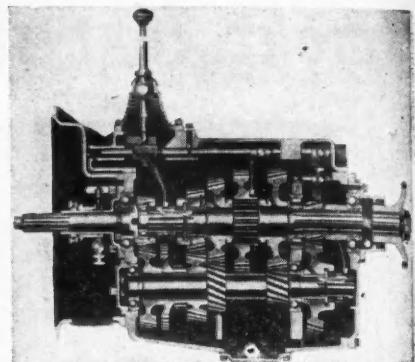


## Fuller Presents New Line of Heavy Duty Transmissions

THE Fuller Mfg. Co., Kalamazoo, Mich., has released the details of a group of heavy-duty transmissions recently added to the line. Among these are the 10B920 and 10A920, ten-speed units; 5A650, five-

speed model; 3A92, three-speed auxiliary; and 2A92, two-speed auxiliary.

These models are of fairly conventional Fuller design. However, there is more than usual interest in the



Cutaway view of Model 5A920

model 5A920 transmission which represents advanced design practice in heavy-duty transmissions. This is of five-speed type with helical gears for all forward ratios and with intermediate bearing support on both the mainshaft and countershaft. While the general features of design can be visualized from the cross-sectional drawing, the unit incorporates a number of unusual features which bear special mention. Moreover, it has had the benefit of operation service on off-highway vehicles over long periods of time.

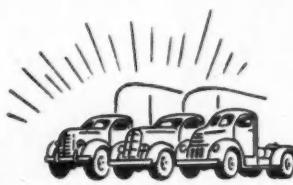
All of the gears for all forward ratios are of helical type; and all ratios, including reverse are engaged by means of jaw clutches. The resulting short, quick shifts thus made possible are said to be particularly valuable in low and second gears on off-highway operations. The shift lever is clean—without latch or latch rod. Speed and flywheel effect of the countershaft have been held to a minimum to make shifting still easier.

Shaft deflection has been held to approximately that of conventional four-speed units by the use of extra heavy bearings and the cross-wall in the housing to reduce the span between bearings. The reverse idler is carried on solid roller bearings.

In each pair of gears the face of the driving gear is extended so as to overlap the driven gear. This provides greater cross-section at the edge where unusual loading due to unavoidable chance deflection in shafts may occur. To afford still greater assurance of safety, the gear teeth are "Crown" shaved to eliminate the possibility of end stress concentration, and thus counteract shaft deflections under unusually severe conditions. Another feature is the adop-

(TURN TO PAGE 87, PLEASE)

WHEN YOU BUY  
THOSE NEW TRUCKS



Specify Hoof Governors

PROTECT YOUR NEW TRUCKS from the start—before taking delivery. That, Mr. Fleet Owner, gives you a big advantage... assures you right from the beginning of a truck that will not only last longer, but also operate day in and day out with less attention, fewer repairs. You'll save money—in 11 different ways.

Specify Hoof Governors... Seal Type... or Key Type, with standard, or special series locks if you have a master number. Be sure you get your copy of "Everything under Control"—the new Hoof Governor Manual. Send for it today.

HOOF PRODUCTS COMPANY  
6343 South Laramie Ave., Chicago 38, Ill.



GOVERNORS SET THE PACE

**FULLER PRESENTS  
NEW TRANSMISSIONS**  
(CONTINUED FROM PAGE 84)

tion of the Almen method of shot peening of the gear teeth to eliminate fatigue failures.

The 5A920 unit has the following range of gear ratios: fifth, 0.744 to 1 (standard); fourth, 1.000 to 1; third, 1.76 to 1; second, 3.27 to 1; first, 6.54 to 1; reverse, 6.49 to 1. In addition, the user is offered the option of 0.636 to 1 in overdrive and 5.06 to 1 in reverse.

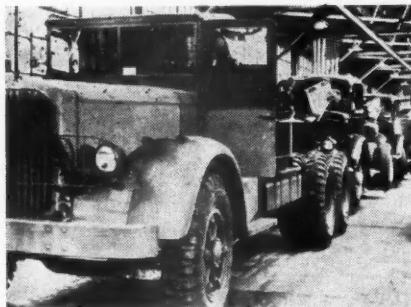
Attention is drawn to the flexibility of this unit what with an overall range of over ten to one, in relatively even and uniform steps. It is claimed that an engine of reasonably flat torque peak can be operated consistently at or near top efficiency throughout the full range of vehicle speeds.

**EARS TO THE GROUND**

(CONTINUED FROM PAGE 38)

**Protean Powerplant**

An independent engine manufacturer will shortly announce two models — a four and a six — incorporating some unusual features. The basic engine is so designed as to make it suitable for burning any kind of fuel—gasoline, diesel fuel or gas—simply by changing manifolds and cylinder heads. This is made possible by an externally installed pre-combustion chamber of unique design. The four-cylinder model will use a three-bearing crankshaft and the six a four-bearing shaft.



The end of World War II for Mack is symbolized in this picture which shows the last Army truck rolling off the assembly line followed by the first civilian trucks. The dull green of this last of thousands of Army trucks produced by Mack during the war gives way to bright colors as the firm's long production lines swing into civilian vehicle manufacture without loss of time.

**Jeepers!**

Willys-Overland is planning to follow up its all-purpose Jeep with a new light truck in four conventional body types on the same chassis, and a larger commercial chassis of heavier load capacity.

**Boost for Bonded Linings**

**EARS TO THE GROUND DEPT.**

**GENTLEMEN:**

On page 40 of the December issue you have an item on Glued Brake Linings.

A few weeks ago I had the brakes relined on my personal car after having had a set of glued linings on for 4½

years. The old linings had worn down to approximately .025 in. and had not separated from the shoes. Needless to say, I had glued linings installed again.

The advantages of the glued lining lie in better braking after driving through water or on extremely dusty roads. There are no depressions to catch water or dirt. Brake drums after 40,000 miles appear to be in better shape than drums which have never been used.

**D. E. Woods,  
Central Power & Light Co.,  
Corpus Christi, Tex.**

**END**

(Please resume your reading on P. 39)

**A VELVET LIKE FINISH IS PRODUCED WITH A FEATHER LIKE TOOL**

**CORRECT BALANCE  
CORRECT WEIGHT  
CORRECT DESIGN  
CORRECT SPEED**



Thirty years manufacturing experience has made it possible for K-O Engineers to give you these four all-important features in a Valve Seat Grinder. These four determining factors are what an experienced mechanic looks for in a Valve Seat Grinder. They're all found in a Knock-Out Grinder.

It doesn't take a master mechanic to produce a velvet-like finish on valve seats. A mechanic with little experience can do it with ease and accuracy when using a K-O Grinder and K-O Stones.

**"Knock-Out" UTILITY  
VALVE SEAT GRINDERS**

are conveniently packed in a handy Tool Chest. This tool will prove to be one of the most worth while and most profitable in any shop. Not only is it built to grind valve seats but also for:

Carbon removing      Abrasive disc grinding  
Tool post grinding      Misc. hand grinding  
and for many other frequent and worth while  
grinding jobs around a shop.



**MODEL P302 UTILITY  
VALVE SEAT GRINDER**

**SEE YOUR "K-O" JOBBER OR WRITE TO  
K.O. LEE COMPANY, ABERDEEN, S. D.**

**Manufacturers of Fine Tools for Over Thirty Years**



# WASHINGTON RUNAROUND

## "CC" Ratings Clarified

The granting of "CC" ratings by the Civilian Production Administration for the purchase of trucks is practically meaningless to most motor truck operators. Under direction 6 to PR28 a rating will be granted only when the applicant shows that a rating is necessary to obtain delivery and that he is engaged in the *production* of items which CPA considers to be in such short supply as to be a serious threat to the national economy. At present these items include coal produced east of the Mississippi River; clay building products (brick, structural tile, and clay sewer pipe); castings (malleable and grey iron castings, cast iron soil pipe, and railroad car brake shoes); and lumber (ratings applicable only to trucks required for use in logging or saw mill or planing mill operations).

The joker in this order, admitted by CPA officials, is that no ratings will be granted for the purchase of trucks to be used in the delivery or distribution of these products, even should a case arise where a fleet operator's sole business consisted of the hauling of one or more of the above items. Ratings will only be granted for the purpose of making available trucks to be used in hauling the raw materials which go into the critical products or for inter-plant operation.

## 5% of Trucks Involved

At the present time it is estimated that the number of trucks which will

## CC Ratings Clarified . . . 5% of Trucks Involved . . . November Truck

**Output 53,103 . . . Tire Normalcy Distant . . . Better Tires in Sight . . . \$680 Per Surplus Truck . . . Trucking Census Proposed . . . Etcetera**

by GENE HARDY  
CCJ Washington Bureau

be delivered under "CC" ratings will never be more than 5 percent of domestic civilian output. Of course, if it should become necessary to broaden the list of critical products because of strikes or for any other reason, undoubtedly more trucks would be sold under rated orders.

Up to the close of business in December, 1945, only one application for a rating had been received at the CPA headquarters and that was for a truck needed for distribution purposes. Presumably, this request will be denied. Incidentally, all CPA field offices closed their doors, effective Dec. 31, 1945, and applications for priorities assistance must now be made to Washington.

Direction 6 does not permit extension of the rating to the manufacturer but limits the use of the rating to purchase a new truck from a distributor or dealer.

Despite the limited scope of the present order, truck manufacturers

expressed surprise and disappointment at its issuance, for it was the industry's view that truck rationing, in any form, was a thing of the past.

The order does not apply to trailers, but there is no provision in CPA regulations which would deny the right to anyone to apply for a rating for the purchase of a trailer.

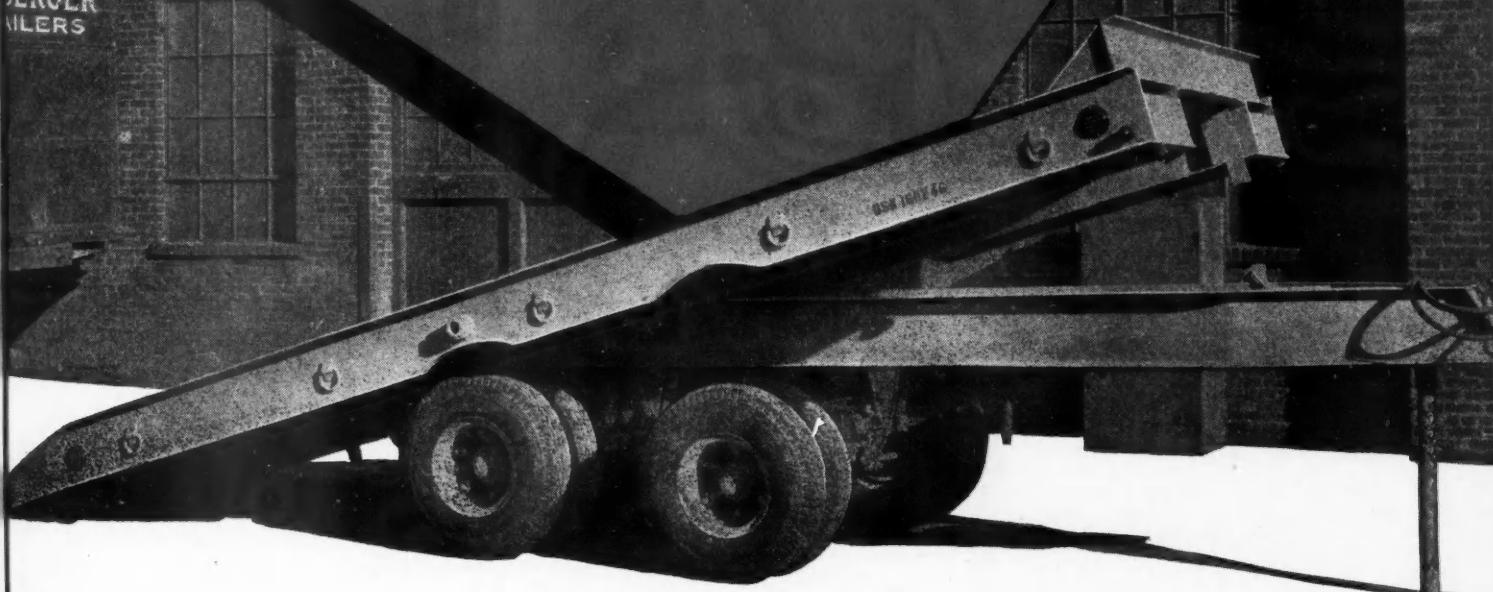
## November Output 53,103

Despite pessimistic predictions from the industry, November civilian truck output totaled 53,103, the highest monthly production recorded during the first 11 months of 1945. The November program called for 80,000 units. During the month 16,912 lights, 30,754 mediums, 4126 light-heavies, and 1311 heavy-heavies were turned out for commercial use. Military procurement during November was down to 531 units. Industry sources say that December production will be considerably below that of November, due

(TURN TO PAGE 90, PLEASE)

# SHULER AXLES FOR REHBERGER TRAILERS!

REHBERGER  
TRAILERS



"One picture is worth a thousand words"—and here's a picture that proves it . . . an ingenious Rehberger Trailer, built for transporting bulldozers, road rollers, concrete mixers, etc., without the use of skids.

Yes, the axles are Shulers. Whatever your

axle needs, for light or heavy-duty trailers of any description, you'll find a Shuler Axle that suits you to a "T." Our large line has been modernized—our production facilities greatly increased. Full facts gladly sent you on request.

**SHULER AXLE CO., Incorporated, LOUISVILLE, KY.**

Export Division: 38 Pearl St., New York, N. Y.

West Coast Warehouse: 2937 Ford Street, Oakland, Calif.

## WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 88)

largely to the General Motors' strike and a shortage of glass, which is affecting all producers.

### Land-Grant Rates Out, But . . .

Repeal of the land-grant railroad rates, effective Oct. 1, 1946, will wipe out the 50 percent freight rate reduction granted the Government

on military freight hauled over the land-grant railroads. Even more important, it will eliminate an estimated 200 equalization agreements signed by motor carriers to meet the competition from the land-grant railroads. Under these agreements, motor carriers agreed to equalize the charge of any rail carrier that might provide the same service over land-grant routes. But this will not end the carriers' troubles with equalization agreements, for the General Accounting Office, bogged down with

antiquated and wholly inefficient methods of auditing and arriving at final land-grant rates, is still working on 1943 government freight bills.

### Tire Normalee Distant

Despite the good signs on the surface, including the end of tire rationing, the truck tire situation will be far from normal possibly until early 1947. Production is now running about 11,000,000 tires per quarter, including 3,000,000 truck and bus tires. The situation in truck and bus tires is somewhat better than in passenger car tires, but tires for these uses will not be plentiful even though there are twice as many for civilian use, replacement and original equipment, than were available before V-J Day.

Conservation measures are still urged by CPA. Spare tires are still prohibited on new trucks, and tires for export will be continued on a quota basis.

### Better Tires in Sight

On the brighter side, the first stocks of crude rubber have arrived from Malaya and are being allocated to truck and bus tires. CPA estimates that expected natural rubber receipts may permit an average conversion of up to 70 percent synthetic rubber and 30 percent natural rubber some time in 1946 for all rubber products, with a proportionate increase for tires.

Production of 1,000,000 truck and bus tires in November was down 5 per cent from October but was up 24 per cent from September and was far above prewar levels.

### \$680 Per Surplus Truck

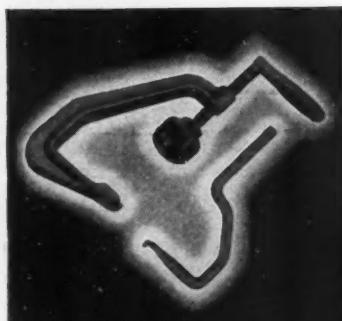
Demand for surplus trucks far exceeds available as well as estimated future supplies. Veterans, who receive priority certificates from the Smaller War Plants Corporation for the purchase of surplus vehicles, are becoming discouraged. Current estimates are that the veteran demand will never be filled, even if all surplus trucks were sold to veterans, excluding other priority groups (government agencies, etc.,) and the commercial channels of trade.

At the outset of the SWPC certification program applications for

(TURN TO PAGE 92, PLEASE)



Developed to service most L- and valve-in-head motors. The most popular and universal C-type Compressor on the market today. K-D No. 380 is rugged, fast and dependable.



Developed especially to pull valve guide assemblies in Ford-built motors no matter how tightly stuck. K-D No. 920 Set (917 Retainer Driver and 918 Puller, as shown) for all motors but 60 HP. K-D No. 860 Set, 60 HP only.



Developed especially for underfender servicing of motors with low cover openings and low-hung manifolds. K-D No. 900 has 3" parallel lift provided by hinged auxiliary jaws, shown by dotted lines.

## look to K-D

• When special valve service tools were required in the past, K-D made them for you. Twenty-five years of automotive development are recorded by the K-D Catalog. As the new cars come along, bringing new servicing problems, you can again look to K-D for the tools that will make the hard jobs easy. K-D Mfg. Co., Lancaster, Pa., and Hamilton, Ontario.



**for minimum wear, also,  
in your fleet**

## **26 BASIC DESIGNS**

**of Sealed Power Piston Rings**

No doubt about it—oil control, blow-by control and low friction are all mighty important in piston rings. But getting these factors with a minimum amount of cylinder wear is vital, too—to insure long life for those other advantages. Sealed Power engineers have developed twenty-six (26) basic designs of piston rings for use in Sealed Power Individually Engineered Ring Sets to give that balanced performance. Whatever the make, model or degree of cylinder wear, there's a Sealed Power Set specifically engineered to do the best possible job in any engine. Sealed Power has been refining these sets for six years, has been producing rings for car, truck and engine manufacturers 34 years. For balanced performance, re-power with Sealed Power motor parts. Sold by America's leading distributors. Sealed Power Corporation, Muskegon, Michigan and Windsor, Ontario.

Piston Rings, Pistons, Cylinder Sleeves, Piston Pins, Valves, Water Pumps, Bolts, Bushings, Tie Rods, Front End Parts.

**INDIVIDUALLY  
ENGINEERED**

**Keep Your War Bonds!  
Get \$4 for \$3!**



# **SEALED POWER PISTON RINGS**

**BEST IN NEW TRUCKS! ★ BEST IN OLD TRUCKS!**

## WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 90)

motor vehicles from veterans were about 80 percent of the total. Currently the percentage is about 39. Other factors which created this drop in demand are the red tape encountered in buying the relatively few vehicles which are available, and new regulations which permit veterans to buy surplus goods for re-

sale, leading to a greater demand for consumer items.

As of Dec. 1, 1945 more than 88,000 veterans had received priority certificates from 110 SWPC field offices. Figures on how many trucks were actually delivered on these certificates are not available, but the latest available RFC Office of Surplus Property statement indicates that the total was negligible.

From April 1 to Oct. 15, 1945, the Office of Surplus Property ac-

quired 38,742 trucks from owning agencies and had disposed of 18,268 units leaving an inventory of 22,951 as of that date. The reported cost of the acquisitions was \$27,701,196 and the dollar value of disposals totaled \$12,424,318. Sales averaged \$680 per unit.

### Trucking Census Proposed

S. 1705 providing for a complete transportation census, but directed specifically to motor truck transportation, has been introduced in the Senate by Senator Pat McCarran, (Dem., Nev.).

Sen. McCarran, speaking on behalf of the bill on the Senate floor said:

"This bill does not cover a census of rail transportation, since statistics of rail transportation are now gathered and compiled, adequately, by the Interstate Commerce Commission. The bill does cover motor truck transportation, since the statistics on motor carriers gathered by the ICC are neither sufficiently comprehensive nor sufficiently detailed."

The bill provides for a census of both common carrier and contract carrier transportation, by highway, by waterway, and by air.

### Lea Resolution Lingers

In addition to Sen. McCarran's bill there are at least two resolutions before the Senate calling for transportation investigations. While on the House side of Capitol Hill Chairman Clarence E. Lea, Dem., Calif., of the House Interstate Commerce Committee is proceeding full speed ahead with his somewhat vaguely sponsored investigation. Formal Congressional approval had not been granted before the holiday recess.

### Re Fire Extinguishers

The ICC temporary wartime safety regulation which permitted the use of sub-standard types of fire extinguishers as emergency accessories for trucks expired Dec. 31, 1945. ICC requirements have reverted to the original rule which provides that every truck shall carry at least one fire extinguisher, of a type inspected and labeled by Underwriters' Laboratories, Inc., under Classification B, and utilizing an extinguishing agent which does not need protec-

(TURN TO PAGE 94, PLEASE)

UNIVERSAL ADAPTABILITY  
AUTOMATIC ECONOMIZER  
for Maximum Economy  
RUGGED CONSTRUCTION  
DURABILITY

Marvel-Schebler Carburetor  
Universal Downdraft  
in Popular Sizes 1 1/4" & 1 1/2"

MARVEL-SCHEBLER CARBURETER DIV.  
BORG-WARNER CORP.  
FLINT 2 MICHIGAN

MARVEL-SCHEBLER  
Carburetor

Production leaders are

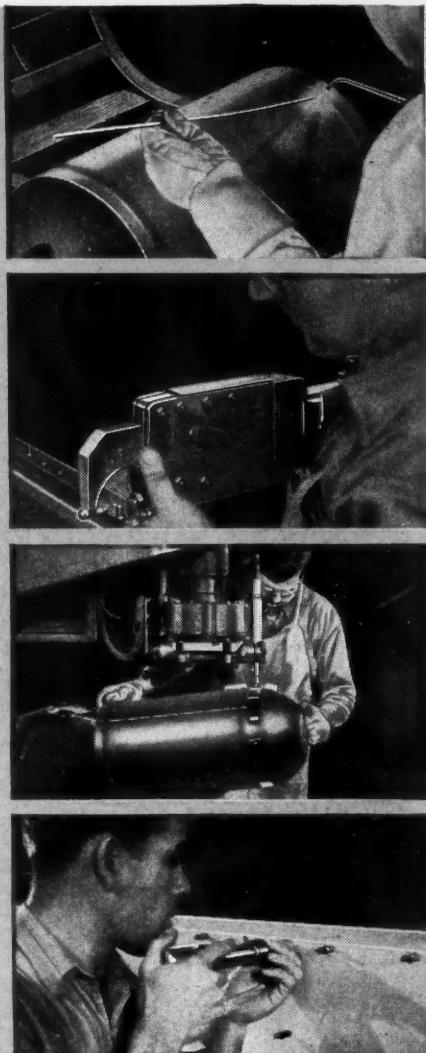
## joining magnesium

for new results by standard methods

Every day, in modern plants, they're speeding new lightweight products . . . making important economies, too . . . by getting the most out of magnesium's advantages in fabrication and manufacturing.

There's easy joining—by all common methods—for example. Like up-to-date production men everywhere, you need only follow the established procedures for joining magnesium by riveting and gas, arc, spot, and flash welding. Riveting is the method most commonly used, with procedures similar to those used with other metals. Welding techniques are likewise simple and well-defined.

For many years Dow has taken a leading part in the development of standard procedures for handling magnesium. For detailed engineering data, call your nearest Dow office.



*Ready:  
to make products more!*

# MAGNESIUM

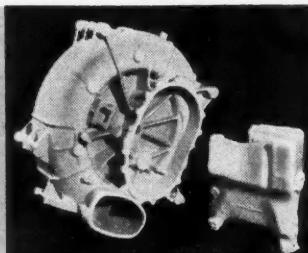
LIGHTEST OF ALL STRUCTURAL METALS



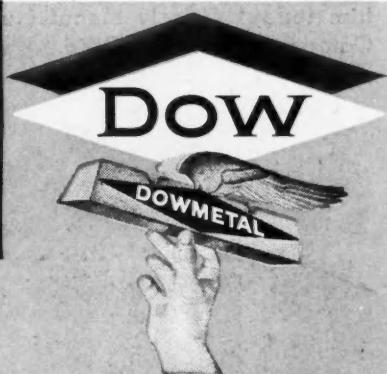
Full stocks of magnesium in all common forms are now available from Dow, the pioneer producer and today's leading fabricator.



Die casting is one of the numerous magnesium production methods. Dow engineers cooperate with many independent die casters.



Many magnesium sand castings, too, are serving to reduce weight in new products in both consumer and industrial classifications.



MAGNESIUM DIVISION • THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Cleveland • Detroit • Chicago • St. Louis • Houston • San Francisco • Los Angeles • Seattle

## WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 92)

tion from freezing, properly filled and securely mounted in a bracket. Minimum sizes are 1-qt. carbon tetrachloride type, or 2-lb. carbon dioxide type.

### Europe Absorbs Army Trucks

Surplus trucks in Europe are rapidly being absorbed by countries receiving UNRRA aid. In addition

to the more than 100,000 vehicles already allocated for relief purposes UNRRA has recently purchased 13,000 trucks and the largest Army motor repair plant in England for shipment to Poland. Czechoslovakia is to receive approximately 6000 surplus Army trucks and trailers. About 1000 trucks and jeeps have been purchased by UNRRA for that organization's own use.

### Hope for Hobbs Bill

The Hobbs Bill, which makes labor

unions subject to federal anti-racketeering laws, passed the House in mid-December, and at that time it was not conceded an even chance in the Senate, which killed a similar bill in 1943 by pigeon-holing it in committee. However, as sentiment for regulation of unions gathered leading Senate observers were more hopeful, and pointed out that while it would still be an uphill fight the bill has an even chance of passage on the floor if it can be blasted out of the Judiciary Committee. Strong representations from those who favor the bill to the Committee chairman, Sen. Pat McCarran, Dem., Nev., and other committee members would serve a useful purpose. The bill is an outgrowth of an almost unbelievable Supreme Court decision in the case of the United States vs. Teamster's Union 807 in 1942. The decision nullifies the anti-racketeering laws in regard to unions. Opposition was noticeably weaker in the House when the bill was passed several weeks ago than in 1943 and it is reported that pro-labor Congressmen lobbied for a voice vote rather than a roll call because they were aware of their weak position.

### Civil War is on Again

The battle between the States is on again. The fireworks were started in the District of Columbia area when Virginia announced that effective Jan. 1 the 2 percent gross receipts tax on the earnings of common and contract carriers would be reinstated. The tax was dropped during the war under a joint agreement.

The District of Columbia retaliated by announcing that Virginia trucks will be subject to local titling, purchases of tags, inspection and registration laws, personal property taxes on vehicles, payment of income tax on earnings in the District, and operator's permits for drivers.

North Carolina has stated that Virginia truckers must pay either a contract hauler license or a 6 percent gross receipts tax, and Ohio has subjected operators to the state's public utility fees.

Pennsylvania and West Virginia, the second and third largest contributors to Virginia's tax, were not heard from up to the end of the year.



...it's Time for  
Higher S.Q.\*

Play safe...reline with Grizzly Brake Lining. Safety Quotient goes up immediately and stays up all through Grizzly's EXTRA LONG life. There's a Grizzly distributor near you—call him today! Grizzly Manufacturing Company, Paulding, Ohio.



"Bear in Mind" ... Ask for

#### THESE GRIZZLY FEATURES

- MEAN HIGHER S.Q.
- Exclusive asbestos-friction compound, molded on wire-grid back.
- Constant high coefficient of friction throughout longer life.
- Astonishing freedom from adjustment.
- Precision machined for quick installation.
- Quick stops...but smooth...and with softer pedal.
- Most efficient braking performance under all conditions of service.

**GRIZZLY**  
REG. U. S. PAT. OFF.  
**BRAKE LINING**

**FAST STARTING  
HORSEPOWER  
FOR YOUR FLEET**



**CASITE**

**GIVES QUICK STARTING  
EVEN IN  
COLDEST WINTER WEATHER**

• Make sure your engines start quickly—no matter how cold. Use Casite. It retards congealing of oil, lets motors spin over rapidly for fast, battery-saving starts. It's a maintenance *must* with fleet owners throughout the land.

For passenger cars and small trucks, a pint in the crankcase every oil change, or every 1000 miles. For larger units and Diesels—10% of crankcase capacity.

THE CASITE CORPORATION • HASTINGS, MICHIGAN

**WHAT CASITE DOES**

**ALL THE TIME—**

- Reduces formation of sludge and gum.
- Frees sticking valves and rings.
- Carries oil to close tolerance areas.

**AND IN WINTER—**

- Retards congealing of oil.
- Gives quick starting, even below zero.
- Speeds up lubrication on cold starts.

**CASITE Gives Better and Smoother Performance All-Year-Round**





## C. A. Musselman, Chilton Board Chairman, Dies



CLARENCE A. MUSSELMAN

C. A. Musselman, chairman of the board of the Chilton Company, publisher of *Commercial Car Journal*, died Jan. 3 in Philadelphia, after a long illness. He was 73.

Originally secretary and treasurer of the publishing company in 1901, he became president of the automotive unit in 1923, and was elected president of the company in 1934, retiring from that post in June, 1945, to become chairman of the board. He was one of the founders of *Commercial Car Journal* in 1911.

Active for many years in both the automotive and publishing fields, he was a member of the Society of Automotive Engineers and had served as president of Associated Business Papers, Inc., and as a member of the board of the National Publishers Association.

Ray L. Morrison has been selected to head the new Brake Division of The Timken - Detroit Axle Co.



Orton P. Hufstader, formerly with OPA in Washington and New York, has been named Studebaker regional truck supervisor for the Philadelphia and Pittsburgh territories



W. J. Robinson, newly appointed regional manager of the eastern region for the Fruehauf Trailer Co.



Earl L. Sloan, newly appointed regional manager for the Federal Motor Truck Co. Mr. Sloan will direct factory sales for the Kansas City and St. Louis regions



Axle Co. Mr. Morrison has a background of 25 years of experience in development, manufacture and sale of automotive brake equipment. He was formerly vice-president and general manager of the Bendix-Westinghouse Automotive Air Brake Co.

### No Spare Tires For New Trucks

Manufacturers of new motor vehicles, including automobiles, trucks, trailers and tractors, will continue to be prohibited from acquiring tires and tubes as spares after January 1, 1946, the Civilian Production Administration announced recently.

(TURN TO PAGE 98, PLEASE)

Jack Davies, new district manager for sales of all Heil Co. products in the southeastern states of Tennessee, Alabama, Georgia, the Carolinas and Florida



### R. L. Morrison Named Head Timken Brake Division

Ray L. Morrison has been appointed head of the new brake division set up by the Timken-Detroit

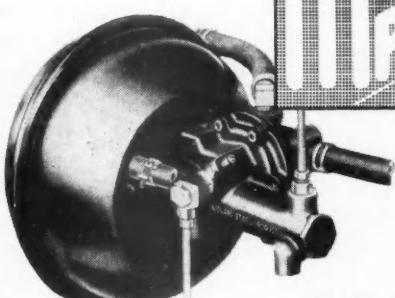
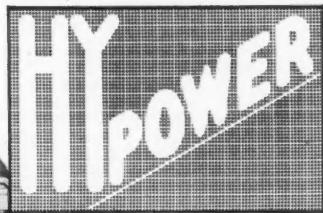
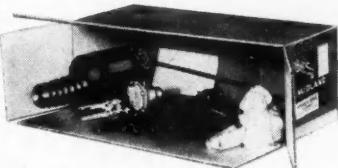
# On Mountain Curves, or in Crowded City Traffic

## COMPLETE KITS

in both  
**AIR** and  
**VACUUM**  
ENGINEERED  
ESPECIALLY for the

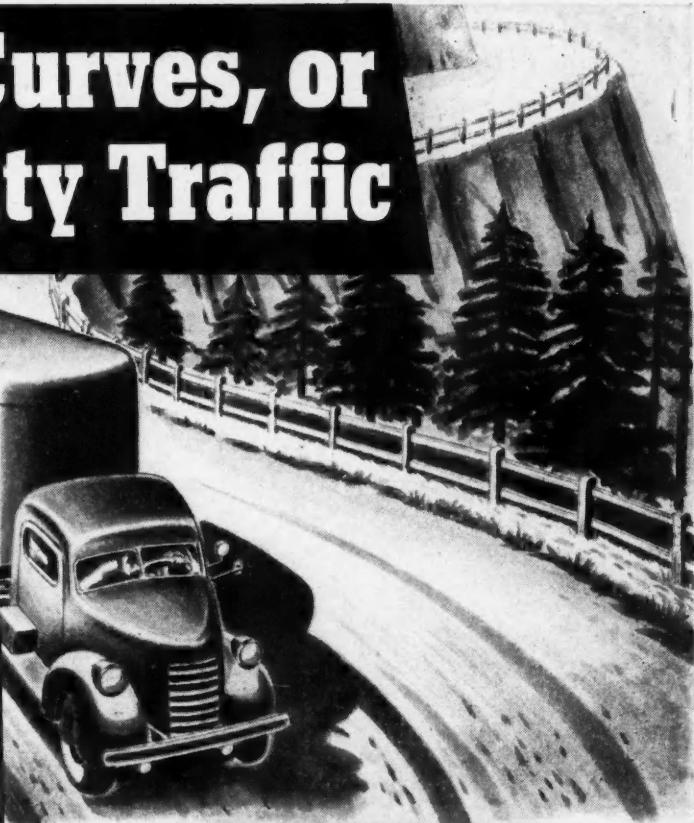
**G.M.C. • CHEVROLET • DODGE  
DIAMOND T • FORD • INTERNATIONAL**

Contains Every Nut, Bolt and Screw Needed



HY-POWER is a completely enclosed and simplified device providing surer, safer

braking. Compact—easy to install—sealed against weather and atmospheric conditions—offers direct applied power—requires no lubrication. Ask your Midland Distributor for complete information, or write to us for descriptive folder.



## MIDLAND POWER BRAKES *Safely Control All Loads*

Midland Power Brakes—in both air and vacuum—assure dependable braking under all conditions of road and weather. They stop any load quickly, safely, easily—reduce driver fatigue—require fewer brake adjustments. Midland Brakes are made for practically every make and type of truck and bus. See the Midland Distributor for full details, or write to us.

**THE MIDLAND STEEL PRODUCTS COMPANY**  
10605 MADISON AVENUE • CLEVELAND 1, OHIO  
Export Department: 38 Pearl Street, New York, N.Y.

NOTE: A newly acquired plant makes it possible for us to consider the postwar manufacture of a few items in household or office appliance, automotive or mechanical fields, in small or medium size fabrications. We invite inquiries to MIDLAND NEW PRODUCTS DEPT. at the above address.



PATENTS  
MAKE  
JOBS

# MIDLAND POWER BRAKES

## CCJ NEWSCAST

(CONTINUED FROM PAGE 96)

### ICC Commissioners Confirmed

William E. Lee of Idaho and William J. Patterson of North Dakota have been confirmed by the Senate to continue as members of the Interstate Commerce Commission for terms expiring Dec. 31, 1952.

Commissioner Lee had filled an unexpired term between January, 1930, and December, 1931, and had

been reappointed twice previously for full seven-year terms. Commissioner Patterson has been associated with ICC for 31 years.

### Tire Rationing Ended, Jan. 1

All tires were released from rationing on January 1. Administrator Chester Bowles of the Office of Price Administration said that rationing was no longer necessary "because production of tires, particularly passenger tires, has increased steadily during the past two months, reach-

ing an output for the last quarter of 1945 of about 11,000,000."

Mr. Bowles said that the decision to end rationing was in line with the agency's general policy of lifting rationing controls on any commodity when supply became sufficient to overcome any danger of general hardship.

### Tilt Named Board Chairman, Bush Made President of DT

At a meeting of the board of directors of the Diamond T Motor Car Co. on Dec. 12, at Chicago, C. A. Tilt retired from the presidency to become chairman of the board, and E. J. Bush was elected to succeed him as president and treasurer, effective Jan. 1, 1946.



C. A. Tilt      E. J. Bush

No other automotive executive, with the possible exception of Henry Ford, has equalled Mr. Tilt's uninterrupted record of 40 years as president and general manager of a major manufacturing concern.

Born in Chicago in 1877, Mr. Tilt was educated in the Chicago University school and private schools abroad. His first business experience came in the shop and office of his father's company, the J. E. Tilt Shoe Co., whose top line of shoes was called the Diamond T line, "diamond" for quality and "T" for Tilt.

So it was that when the younger Tilt decided to go into the then new field of automobile manufacturing, in 1905, he used the Diamond T name. The original Diamond T's were passenger cars, and were individually built by hand in the rear of a small one-story garage. They were sold locally with custom-built bodies, and carried the present Diamond T trademark.

It was in 1911 that a Chicago manufacturer whose executives had owned Diamond T passenger cars, asked Mr. Tilt to build them a truck. He agreed, and the first Diamond T truck saw daily service in Chicago.

(TURN TO PAGE 160, PLEASE)



### QUICKLY HONE ALL BRAKE CYLINDERS — $\frac{3}{4}$ " to $2\frac{1}{2}$ "



Save time... Save money... Hone every type of brake cylinder from  $\frac{3}{4}$ " to  $2\frac{1}{2}$ "—right in your own shop... through the use of AMMCO Brake Cylinder Hone Kits. The precision hones in these kits will correct any corrosion, pitting or roughness on brake cylinder walls—resulting in smooth, easy plunger operation and positive braking. Fast, accurate and economical.

Mechanics need no special skill to get perfect results from the start. Kits available in various hone body combinations to fit every need. See your AMMCO Jobber now—or write us.



AUTOMOTIVE MAINTENANCE MACHINERY CO.

2100 Commonwealth Ave.

North Chicago, Ill.

WHY SOUTHERN COACH...

STANDARDIZED ON

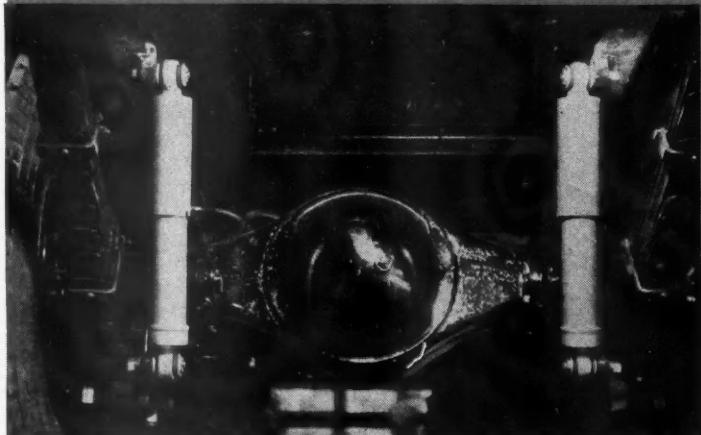
**CLE-AIR**

SPRING CONTROL UNITS



Free booklet tells all the facts  
on Cle-Air units. Ask for it!

Installation view of Cle-Air units on a Southern Coach



"We select all components on the basis of quality and performance...—"guided by that principle, Southern Coach Mfg. Co. wanted the best in shock absorbers for their Model F-31 City Buses. Consequently, Southern chose Cle-Air spring control units because of their many proved advantages:

1. **HEAVY DUTY TYPE** Cle-Air's are not "passenger type shocks" adapted to fleets, but rugged units specifically designed for rigorous usage on trucks and buses. Built to aircraft tolerances, Cle-Air units, when properly serviced, *last as long as the vehicle*.
2. **EASY, LOW-COST MAINTENANCE.** Checking the hydraulic fluid level every 15,000 to 20,000 miles is the only service normally required. This takes but a few seconds with the convenient filler plug. Typical is the report of one bus operator whose Cle-Air units have gone 100,000 miles at a cost of only 15¢ apiece for oil.
3. **COMFORTABLE RIDE CONTROL.** Identical in principle with our famed Aerol landing gear that safely land 80-ton aircraft, Cle-Air units are dual-acting—hydraulic and pneumatic. This unique principle efficiently absorbs all shock and recoil, producing a comfortable ride of unmatched smoothness.

**THE CLEVELAND  
PNEUMATIC TOOL CO.**  
AUTOMOTIVE DIVISION • CLEVELAND 5, OHIO

## FLEET-DESIGNED REEFERS

(CONTINUED FROM PAGE 55)

or not the tractor is hooked up. Temperatures can be maintained from zero but most loads can be handled with a constant inside temperature of 15 deg. above zero.

There were various problems to solve when building a self-contained packaged unit for refrigerated vans, easy to switch on the service floor

and reliability in use. One of the problems was that of the engine starting under load. Experimental work was conducted two years before arriving at the present clutch, which is what we call a centrifugal clutch, in the driving V-belt pulley which is on the crankshaft of the engine. The engine is allowed to gain up to 1200 r.p.m. before engaging the load. At that point, friction arms inside the driving pulley, similar to the arms on a fly-ball governor, engage the load. This type of clutch is now available

commercially, although we built the first ones we used.

Since the unit is located close to the road, where it picks up considerable heat, an early trouble was vapor lock. This was eliminated once and for all by installing a one-gallon tank slightly above the carburetor. The engine is equipped with a conventional mechanical fuel pump which pumps from the main gasoline fuel tank direct to the carburetor bowl. We have added the auxiliary tank above the bowl and run the pump line to it so that in ordinary operation the pump fills the auxiliary tank and the bowl, too. Should a vapor lock occur in the pump lines the carburetor is fed from the one gallon auxiliary tank by gravity hence eliminating vapor locks.

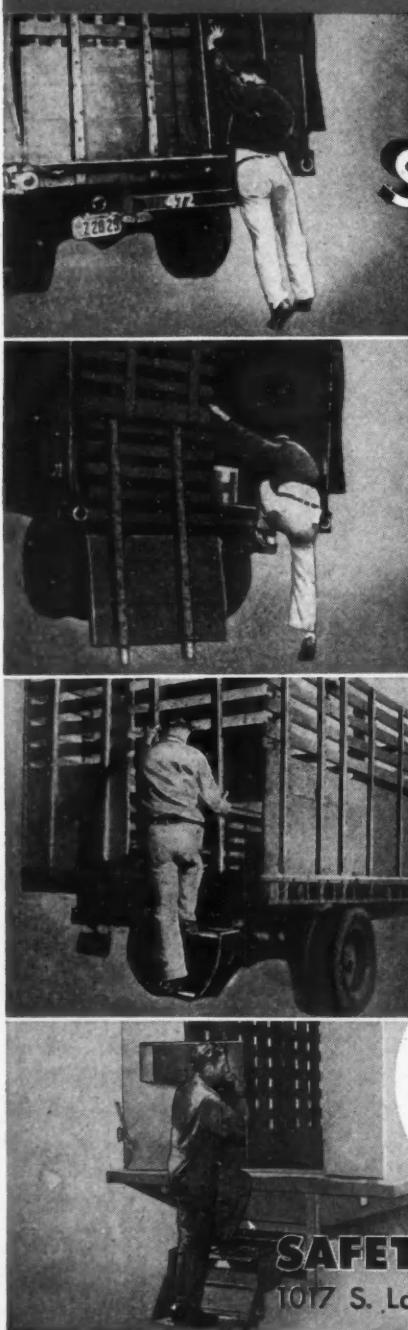
One of our former troubles was the breaking of lines due to vibration. This was particularly true of refrigerant lines which, of course, put the entire unit out of service immediately. This has been completely cured by the use of flexible joints which must not be confused with flexible lines. These joints are made of brass and neoprene and will flex without breaking. A broken or leaking line is a rarity now.

We probably should mention the disadvantages connected with the near-the-road location on the left side of the trailer. These are excessive heat from the road, dust, dirt and water. Waterproof magneto coverings keep the ignition system, operating any weather. Sealed bearings are used throughout which are impervious to rain, dirt and dust. There are several points to be greased and these must be lubricated after each trip. There are only three grease connections to each unit and these have been piped to one location and may be greased in a matter of minutes.

### Extra Units on Hand

A FEATURE in servicing this unit is that a completely overhauled unit is on hand at all times. When needed, the old one is disconnected and a new one hooked up. This operation can be done in a matter of a very few minutes, because all that has to be done is to connect two refrigerant lines and four bolts.

In order to be certain that standby  
(TURN TO PAGE 102, PLEASE)



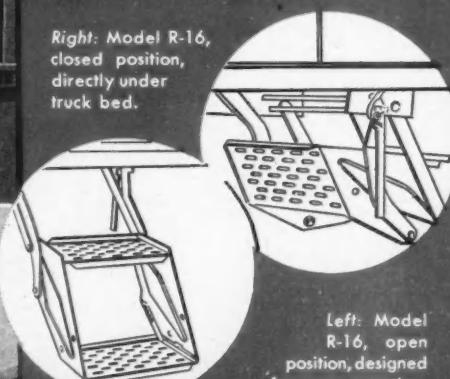
## SAF-T-STEP

SAF-T-STEP eliminates those dangerous, exhausting strains that injure and wear your drivers down. SAF-T-STEP, the first engineered approach to an old "trucking" problem, makes it possible for one man to do many load and unload jobs that previously required two! 20,000 users now attest to the value of SAF-T-STEP.

SAF-T-STEP, now ready for immediate delivery is constructed to carry a 1000 pound load. Comes in two models, one for rear mounting, the other for side use where hanger space is limited. Both are engineered to fit most flat rack, stake, van, trailer or "semi" bodies with custom like precision.

- See your nearest truck dealer or write direct.

Right: Model R-16,  
closed position,  
directly under  
truck bed.



**SAFETY STEP SALES CO.**  
1017 S. La Brea Ave., Los Angeles 35, Calif.

# Soft pressure does it!



Millions of installations of Steel-Vent piston rings, in both rebores and re-ring jobs, have proved that the Hastings Steel-Vent soft pressure principle not only stops oil-pumping, it also checks the wear on cylinder walls.

You can use Steel-Vents with confidence in any reboore or re-ring job.

## SOFT PRESSURE DOES IT — IN REBOORES, TOO

Here's the kind of endorsement Steel-Vent gets from jobbers and dealers all over the country: "We have been using Steel-Vent rings in reboore jobs as well as in re-ring jobs for the past six years. The results we get have proven to us that it is the best ring for all kinds of jobs. Fleet operators are very much interested in holding down cylinder wear as well as more miles per ring job. We feel we have been able to give them these two things with Steel-Vents."

HASTINGS MANUFACTURING CO. • HASTINGS, MICHIGAN  
Hastings Ltd., Toronto

## HASTINGS STEEL-VENT PISTON RINGS

U. S. PAT. 2,148,997

TOUGH ON OIL-PUMPING GENTLE ON CYLINDER WALLS



## FLEET-DESIGNED REEFERS

(CONTINUED FROM PAGE 100)

equipment in the shop is in perfect operating condition, we have built a replica of a trailer near the ceiling of the service floor in which was installed our regular evaporator coil and expansion valve. Each standby unit is hooked to this by lines running down to the floor and the unit is operated at the same temperature

that would be necessary if actually installed on a refrigerated unit. After a definite period of automatic operation it is pronounced ready for use and remains in that position until it is installed on the refrigerated trailer.

The present equipment is turning in such a good record that we seldom service a refrigerated until before the regular check periods. Each unit is brought in to the reefer shop for a complete overhaul after 2500 hours of operation. The hours of operation are charged against the unit

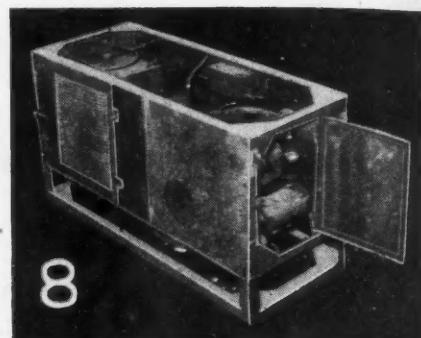


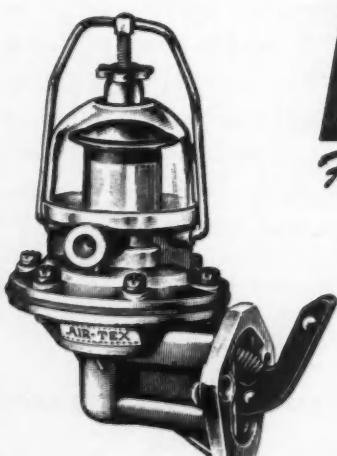
Fig. 8. Standby compressor shown in a floor frame. It is hooked-up to run evaporator coils near the shop's ceiling

## CANOPY AND SIDE CURTAINS



### Remember THIS RAMBLER SURREY?

It was "tops" in 1905, yet would make a mighty poor showing against any of today's models. And it's just as far a cry from the Rambler's old-time, inflexible, gravity fuel feed, to the responsive efficiency of . . .



## AIRTEX

Factory  
Tested FUEL PUMPS

Properly hardened rocker arms, the hardening and precision grinding of rocker arm pins and correct spring tensions are among the important factors in AIRTEX Fuel Pump efficiency. Others of equal importance are the uniformity and accuracy of body castings, close tolerances on machined parts, the famous AIRTEX diaphragm and the rigid testing of all diaphragm assemblies for gas-tightness.

Assembled with AIRTEX Diaphragms  
Guaranteed for 50,000 Miles



"Airy"-TEX says:  
"Your profits climb with the AIRTEX Line"

AIRTEX AUTOMOTIVE CORPORATION, FAIRFIELD, ILL.



(Please resume your reading on P. 56)

END

## FLEET'S NEW SHOP

(CONTINUED FROM PAGE 46)

heads from the block by exerting a direct pressure. This last operation eliminates the use of screw drivers, chisels and hammers to loosen a stuck head with reduction of liability of damaging head or block.

For removing bushings and installing them, and for all light operations, we have a 1½-ton arbor press.

Valve refacer and hard-seat grinder will take care of the valve seating problem.

### Parts Rebuilding

FOR generators and starters we will set up our own rebuilding department in the new building. We will stock replacement armatures and other accessories.

In this department we will have a 10-in. bench lathe for turning commutators, refinishing generator and starter shafts and for making bushings, shafts and parts when necessary. A growler for testing armatures will be part of this equipment.

Another important machine will be a bushing grinder to be used for fitting pins and bushings. We will also use this machine to grind master brake and wheel cylinders.

We will be fully equipped to do reborning of our own engines. Extra accessories and equipment in this department will include an electric hone and cylinder polisher, equipped with a dust collector. We are sparing no equipment that will promote a mirror finish on the cylinder walls which will give us repair jobs with longer lives and the consequent reduction in upkeep cost of our trucks.

Other shop equipment includes a 1/3 hp. heavy duty flexible shaft grinder with variable speeds, for sanding down fenders and other work which can only be handled with such a tool.

A pedestal drill press with a 3/4-in. chuck and powered with a 1/2-hp. motor will take care of the hole drilling chores for the body, paint and repair shop.

The paint and body shop will be equipped with a bandsaw for sawing wood, a wood shaper and a 6-in. jointer, a thickness planer and a power sander.

### Lubrication and Washing

LUBRICATION department will not use a lift but will have a completely equipped grease pit. This will be lighted and kept in a clean condition. New and modern greasing equipment will be installed.

Besides a high pressure car washer on the washrack we will have steam cleaning equipment. Each engine and chassis will get a steam cleaning at regular intervals.

Reduced wear and reduced main-

tenance cost are the result of keeping mud and dirt off engine and chassis where it works its way into spindles, spring shackles and other moving parts to cause excess wear.

### The PM Program

OUR PM system will provide for the conventional daily, weekly and monthly checks. Part of our system will be modeled after the system in use on aircraft, where certain

(TURN TO PAGE 108, PLEASE)

**BIG** in size **MASSIVE** in structure **GREAT** in performance

No. 5631  
With streamlined handle and loop for padlock.

No. 5631 1/2  
With key locking, streamlined handle.

No. 5637  
With inside handle only.

SHOWING INSIDE OF LOCK

The name "BIG VAN" for these Eberhard locks has triple significance. Know-how, gained through years of experience, has produced them specifically to lock the BIG heavy doors of vans and similar large truck bodies. Naturally, they are MASSIVE in structure to withstand this exceptionally gruelling service and give the remarkably satisfactory performance which so many users have significantly described as GREAT. All Eberhard products are characterized by expert designing, liberal proportioning and careful machining—which have caused the Eberhard **E** to be widely accepted as a symbol of the best that is obtainable in vehicle hardware.

Write for Information  
AND THE NEW  
EBERHARD CATALOG

**EBERHARD**  
MANUFACTURING CO.  
DIVISION OF  
THE EASTERN MALLEABLE IRON CO.  
CLEVELAND, OHIO

**E**



# Freedom of Choice in Automotive Equipment is guaranteed to you by your Independent Automotive Wholesaler

From lifts and wheel straighteners to instruments and gauges, the whole world of American automotive service equipment is brought to your doorstep by the Independent Automotive Wholesaling System of Distribution.

Your Independent Automotive Wholesaler is keenly aware of the importance of such equipment, not only to the adequate servicing

of America's automotive transport, but also to your total profits. He knows your special needs and requirements. He cooperates fully with manufacturers of automotive equipment in their merchandising and advertising programs so that you may realize the maximum profits that come through intelligent sales planning and the sale of performance-proven automotive service.

*Buy with Confidence*

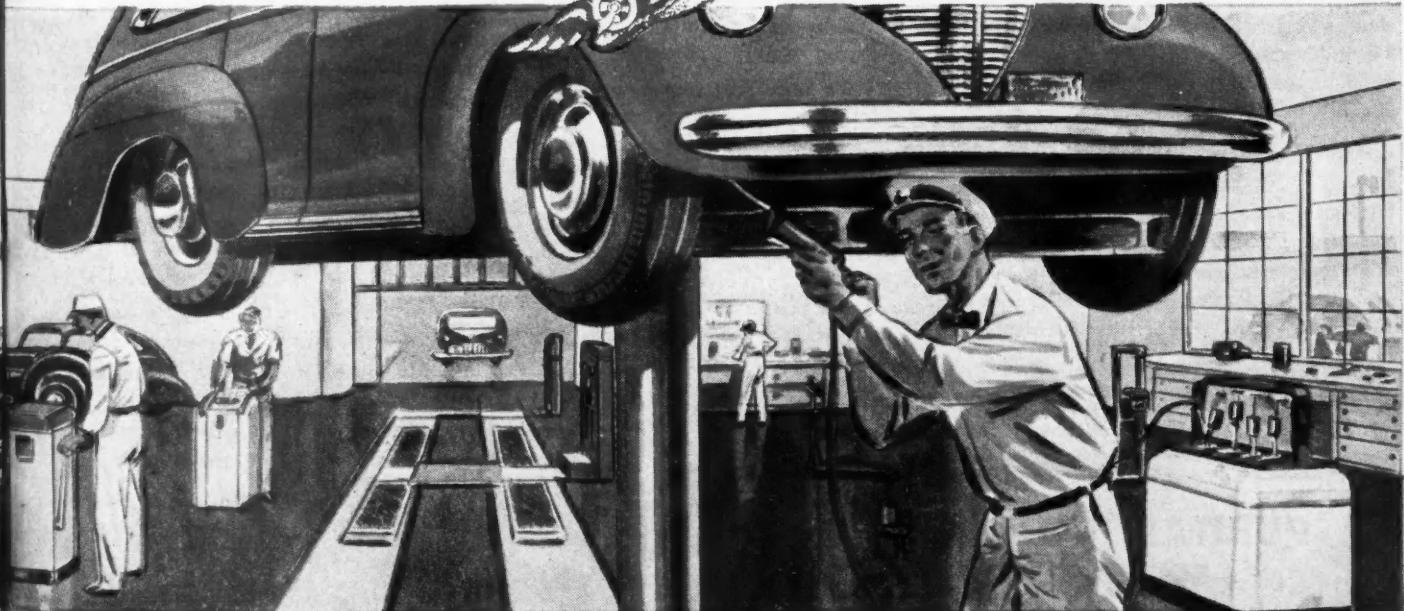
*Where you see this Insignia!*

# M EWA



*In the story, Seven League Boots saved the wearer thousands of steps by making each step seven leagues long. Your Seven League Boots are your Independent Automotive Wholesalers. They save you thousands of time-wasting steps by making available to you from one source all needed parts, equipment, supplies and machine shop service.*

1238.



## FLEET'S NEW SHOP

(CONTINUED FROM PAGE 105)

operations must be completed before the plane is allowed to leave the ground.

Every truck will go on the hydraulic lift once each month, whether there is a complaint on it or not, where it will be examined by competent mechanics, for evidences of wear, loose nuts, missing bolts and cotter pins, broken spring leaves, or

anything a close inspection will reveal. This will promote the repair of the minor things while they are still small. We expect this one procedure to help eliminate much of the repair work that we now do.

We are going to impress on the minds of all shop and service employees that a truck breakdown on the road is much more than a mere breakdown—it means delay of important deliveries to customers. It means expense and time to go to it and tow it in, and it means time lost

in the shop because we have to stop to take care of a breakdown.

Every man will be on a constant alert to catch a small beginning—the kind that starts with a loose nut or a missing cotter pin.

END

(Please resume your reading on P. 47)

## LETTERS FROM READERS

(CONTINUED FROM PAGE 37)

plicity of the card, coupled with its ruggedness and easy reading.

I think fleet operators would be happy to pay a nominal sum for standardized instruction cards such as proposed in the article.

The size proposed (14x18) seems to me to be a little too large for ease of handling in close places and also seems to me would somewhat discourage the use of same by mechanics. On the other hand, I fully realize the difficulty of putting clear and definite instructions in type and pictures sufficiently large for easy reading. Could it be possible that the instruction card be hinged in the middle of the 18-in. side so that it could be folded on the job when necessary to card size 9x14?

As a whole I think that the proposed instruction cards will be a means of making a very important step forward in preparing instructions. It seems to me that the matter of service manuals and proper instruction to mechanics, fleet operators, etc., has been given too little attention.

Under the present set-up with cumbersome and poorly constructed manuals the mechanic is discouraged from the use of same and, therefore, loses much information for himself and, in turn, is not able to do the proper job on the equipment for his employer. I am sure that anyone who has endeavored to take the average manual with his hands covered with grease would more than welcome a nice sized card with all the information on it which he could handle without thumbing through innumerable pages which he is unable to either understand or read because of grease or smudge on the paper.

O. K. LEBRON, MGR.,  
Sterrett Operating System,  
Baltimore, Md.

(TURN TO PAGE 110, PLEASE)



## And Now, BY POPULAR DEMAND we give you PURITAN FLUSHING FLUID

Ask your brake service man what he needs most to do a better job and he'll answer, "A really fast and effective brake flushing fluid."

And here it is—\*Puritan Hydraulic Brake Flushing Fluid. A carefully engineered product developed by Puritan chemists—the same men who gave you the only all—"miscible" Brake Fluid. Puritan Flushing Fluid makes the formerly messy, slow and therefore often

neglected brake system cleaning job a quick and simple operation.

Get your supply of this new Flushing Fluid now and keep the brake systems of your cars and trucks in top-notch operating condition. Be sure to refill with Puritan Super Brake Fluid, the brake fluid that was engineered for heavy duty truck service. Ask your distributor for these two Puritan Products that lessen maintenance and improve hydraulic brake operation.

\*Flushing Fluid is a timely service aid. Brake fluid oxidation and gum formation are aggravated by cold weather. Now is the time to flush brake systems!



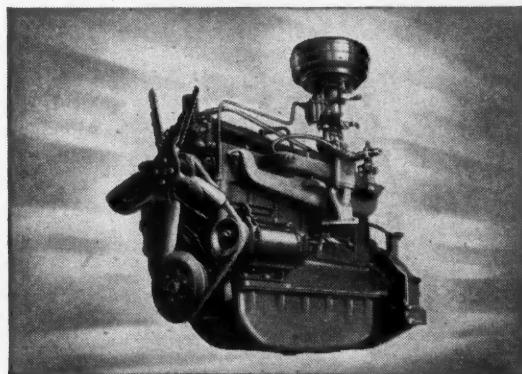
**PURITAN COMPANY, INC.**  
ROCHESTER, NEW YORK



# Ask G.I. Joe about GMC Pulling Power

On every battle front G.I. Joe saw proof of GMC's pulling power. In the South Pacific, in temperatures as high as 130 degrees, GMC "six-by-sixes" hauled huge loads through hub-deep mud and sand. In Europe, GMCs played the leading role on the famous Red Ball Express. In Alaska's ice and snow, Burma's jungles and Italy's mountain trails... wherever heavy loads were pulled through heavy going... GMCs did the job.

G.I. Joe knows about GMC pulling power... and what he can tell you is mightily important to truck buyers. For GMC commercial models,  $\frac{1}{2}$  to 20 tons, have engines of the same basic design as their military brothers. They offer the civilian counterpart of the power, performance and stamina demonstrated by nearly 600,000 GMC "Army Workhorses."



*The famous "270" engine, power plant of the "Army's Workhorse," also powers GMC models in the 3-ton range. All other GMC gasoline engines are of the same basic, war-proved design.*

THE TRUCK OF VALUE



GASOLINE • DIESEL

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

## LETTERS FROM READERS

(CONTINUED FROM PAGE 108)

### Cards Good Step Forward

EDITOR, COMMERCIAL CAR JOURNAL,  
DEAR SIR:

I think the idea of a standard instruction card is a very good step forward in giving information as desired to the man who has to do the actual work. It would be much more used for reference than a dozen man-

uals that would be laying around loose.

As for cost, I don't think a few cards for, say carburetor or fuel pump, etc., would cost more than an advertising catalog of each separate one. As for the filing cabinet, let each mechanic either buy or make one to suit his own needs, as a mechanic servicing three or four makes of trucks and cars would need a different size in depth than one who serviced one or two makes.

I think the cards should be made

available to the mechanic himself, not just to the shop foreman.

J. B. WARDEN,  
Worcester Fire Dept.,  
Worcester, Mass.

### OK, But Not for This Fleet

EDITOR, COMMERCIAL CAR JOURNAL,  
DEAR SIR:

The proposed Standard Service Instruction Cards would not be very satisfactory in our own shops as we have quite a variation of equipment to service and repair.

However, in an organization having fairly well standardized equipment, I think the idea is very good and probably nearly all fleet operators in this class would be more than willing to pay a small sum for such cards. The cards would be more convenient for the mechanics to use.

Would think the proposed size would be about right. Would like to suggest that the cards be well varnished or lacquered after printing so that they may be washed occasionally. Some mechanics are not too careful about cleaning their hands and the instructions may become illegible after awhile.

MERLE J. CAMPBELL, Fl. Supt.,  
Dept. of Conservation,  
Marquette, Mich.

### More Useful

DEAR SIR:

I offer the following opinions and suggestions:

1. The standard card form would be more useful than the present book form.

2. Mechanics would use the cards more than they use the manuals.

3. Considering past customs in such matters, many fleet operators would hesitate to pay extra for maintenance instructions on the trucks they buy.

4. The proposed size, 14x18, would be inconveniently large for both use and filing.

5. To meet with general acceptance by mechanics, service instructions should be boiled down to essentials. They should contain what the mechanic on the job wants to know and doesn't. Such items as "drain the oil and remove the oil pan" and "remove connecting rod assemblies by removing the cotter pin or lock nut from

(TURN TO PAGE 112, PLEASE)



### COLD WASHING PROCESS ELECTRICALLY OPERATED

### WORKING SPACE 12" DEEP

PATENTED

### CONTINUOUS FILTERING PROLONGS EFFICIENCY of CLEANING COMPOUND

NEW MODEL KS-30 \$96<sup>50</sup>  
LESS ACCESSORIES, FOB MINNEAPOLIS

### Available ACCESSORIES

10-gallon DUNKING TANK; self-draining DRYING SHELF for basket or parts; BAS-RETS that fit into dunking tank. Strong, arm CLEANING BRUSHES.

## Kleer Flo AUTOMOTIVE AND INDUSTRIAL PARTS WASHER

### STOPS the brushing away of your profits

It's the economical, safer, quicker and easier way to clean large or small parts and tools. Your mechanics will be more efficient and productive when handling parts cleaned the Kleer-Flo way. Your profits go up because they do more work in less time.

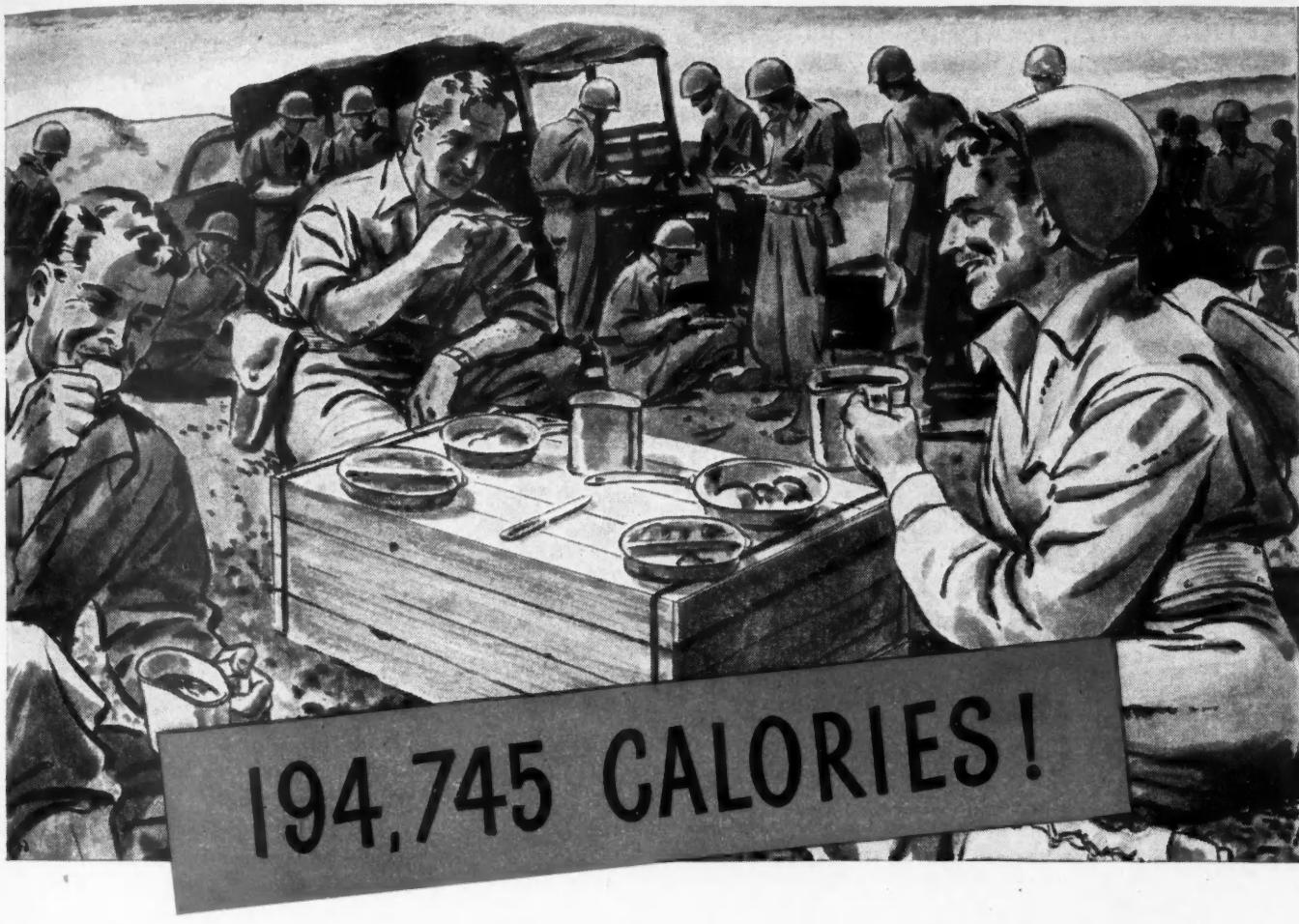
## Kleer Flo CLEAN- ING COMPOUNDS HI-T DEGREASOL

— powerful, rapid, "penetrating" — completely removes grease, sludge and sediment without pitting or corroding; will not attack aluminum, babbitt, solder, paint, pot metal or die castings. Leaves no oily film or residue. Used cold—no heating. FAST-DRYING yet SAFE to use—non-explosive. Gives long service in Kleer-Flo Cleaner. NOT to be mixed with water. 30-gal. drum \$31.50, 55-gal. drum \$53.35 F.O.B. Warehouses including drum.

M-467 leaves slight film as a rust preventative. Used cold—no heating. Economical to use in Kleer-Flo Cleaner. Will not attack metals or finishes. 30-gal. drum \$21.30, 55-gal. drum \$39.05, F.O.B. Warehouses including drum.

### Ask Your Jobber or Write Us

PRACTICAL PRODUCTS CO. • 2632 Nicollet Avenue, Minneapolis 8, Minn.  
Manufacturers of Mechanical Parts Cleaners, Cleaning Compounds, Kool-Ant Pumps



Every time you stop a 10-ton gross load from a 30 mile speed, energy equal to the food requirements of 95 fighting men for a whole day is released. Astronomical figures soon result from a normal day of cross-country or in-city driving.

To control this energy, bring the load to a smooth, safe stop, drivers and maintenance men prefer American Brakebok Heavy Duty Brake lining . . . engineered to take the punishment of tough schedules . . . built to give safe stops at a lower cost per stop.

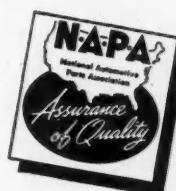
For over 50 years American Brake Shoe has been

solving braking problems for our country's common carriers. To meet the needs of all types of braking systems, American Brakebok engineers have developed three types of heavy duty lining. Three types, but one quality—the best!

To be certain of the most reliable and economical lining for your specific job, call on American Brakebok's Free Advisory Service. You can benefit from the engineering skill and research facilities that have made American Brakebok original equipment on the majority of trucks and buses—first choice for drivers and maintenance men.

# American Brakebok

## HEAVY DUTY BRAKE LININGS



Speedy delivery of American Brakebok products is assured by complete stocks at 38 strategically located warehouses and from jobbers everywhere.



AMERICAN BRAKEBOK DIVISION • DETROIT 9, MICHIGAN

## LETTERS FROM READERS

(CONTINUED FROM PAGE 110)

each connecting rod bolt and removing the nut," together with pictures to illustrate the operations only waste the mechanic's time and patience in trying to find the information he wants to know and doesn't. They also contribute to the necessity of a card size that is excessive. I believe that standard letter size, 8½x11, would be found the most practical and most easily promoted.

In considering the fact that service instruction cards will cost the manufacturer more than manuals, let me present this picture. In 1935 I bought 10 trucks, all alike. With the tool kit in each truck came a 200-page instruction book. Most of these books went directly into the shop rubbish barrel, of course. One or two was enough to keep. In 1947, after the adoption of the card system, I will again buy 10 new trucks. This time the dealer will give (or sell) me one set of standard service instruction

cards to fit a standard letter file which I have or can easily buy at small cost.

Furthermore, when in 1948 I buy five more new trucks from the same dealer, it will be found that many of the maintenance operations on them are properly covered by the cards I have for the 1947 models. Therefore, he will give (or sell) me only service instruction cards covering operations which are different on the 1947 and 1948 models.

Thus, by intelligent and careful preparation and handling, much waste could be eliminated which would go far toward absorbing the excess cost of cards over manuals.

F. G. DUDLEY,  
Fl. & Bldg. Supt.,  
Hoague-Sprague Corp.,  
Lynn, Mass.

## More Usable for Main and Branch Shops

DEAR SIR:

Standard Service Instruction cards as described in the October article would be more practical than a manual to us because we have a number of small shops in remote locations where the head mechanics work with the tools. A card of sturdy material of about the size suggested by Mr. Lord would be much more usable under such conditions.

In the main shops such cards could be loaned to mechanics, where new or unfamiliar construction is involved, with excellent results as suggested in the article.

Surely any dealer or fleet owner would be willing to pay the additional cost involved in producing such a card service.

H. D. COFFMAN,  
Equip. Supt.,  
Wash. Dept. of Highways,  
Olympia, Wash.

## Let's Have It

DEAR SIR:

It is my opinion that the proposed "Standard Service Instruction Cards" for on-the-job use is a better way of publishing service instructions than is the presently used service manuals.

If the instruction card is adopted by the automotive industry in general, there should be no reason for the fleet mechanic or fleet service man to overlook the servicing of any item on the individual vehicle, which

(TURN TO PAGE 114, PLEASE)

## Let 'Em Roll—SAFELY!

**A**—is for accident, a thing we all shun; to burn up or crack up is really no fun.

**M**—is for man power—the human equation; we depend upon them on every occasion.

**E**—is for effort—we mean hours of toil, to give us our goods—our food without spoil.

**R**—is the rugged equipment in use, thru hours of pounding—it must stand abuse.

**I**—is for insight, intuition and nerve; they watch us to keep from crowding a curve.

**C**—is for care in rain, fog, or sleet; they're always prepared—they're swell guys to meet.

**A**—is for accident—a thing we avoid; they happen quite easily when we are annoyed.

**N**—is for night—the time that trucks drive. the "man in the cab" drives to keep you alive.

**S**—is for Safety in letters quite tall, if courtesy reigns—happy rides for us all.

**A**—is for accident—it can happen again, but care and good outfit will soon end its reign.

**F**—is for folly—a moment to save, we may win a dash—or maybe a grave.

**E**—is the ease a safe driver feels, he holds the best hand—no matter who deals.

**T**—is the time we so carelessly spend; let's play safe in driving—why hasten the end?

**E**—are the years—they're ours to enjoy, Play safe as you drive—you're no longer a boy.

**T**—is our temper—a "bad boy" at best, the safe driver rolls along with the rest.

**A**—is that accident—a careful man's bane, we took a fool chance—a second to gain.

**N**—is the nut we all hate to meet, he jumps all the lights—abhors a "stop" street.

**K**—is the "can," the "jug," or the "jail," but think about this—a morgue has no "bail."

**S**—still is safety, good sense, and good will, Remember if hurt—you must pay the bill.

**American Safety Tank Co.**

UNDERWRITERS LABORATORIES,  
INC., A. U., 1302  
U. S. PAT. NOS. 2090197 & 2268697

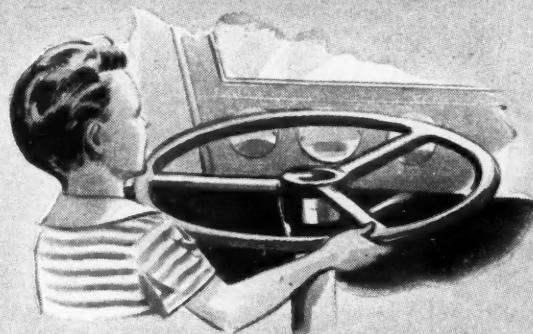
KANSAS CITY, MISSOURI,  
U. S. A.

# A SMALL BOY



# CAN STEER A BIG TRUCK OR BUS

# LIKE THIS →



## with **VICKERS** Hydraulic POWER STEERING

We don't expect a small boy to drive a big truck or bus, but his strength is many times equal to the steering effort required if the vehicle has Vickers Hydraulic Power Steering. The steering wheel turns with effortless ease, and the front wheels always follow exactly.

Moreover, no matter how rough the ground, no road shock can get to the driver. The steering wheel cannot spin, or jerk—the vehicle can be driven over the curb or through sand with no "fight" from the wheel. A flat tire will not cause swerving. The driver is relieved of the most fatiguing part of his job—enabling him to work faster and longer with greater safety.

Vickers Hydraulic Power Steering is simple, compact, easy to apply to existing chassis designs. It has automatic protection against abuse and excessive steering reaction forces. Lubrication is automatic. Fifteen years of successful operating experience on trucks, buses, road machinery, etc. have proved the value of Vickers Hydraulic Power Steering. Write for Bulletin 44-30.

**VICKERS** Incorporated

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Application Engineering Offices: CHICAGO • CINCINNATI • CLEVELAND • DETROIT  
LOS ANGELES • NEWARK • PHILADELPHIA • ROCHESTER • ROCKFORD  
TULSA • WORCESTER



## LETTERS FROM READERS

(CONTINUED FROM PAGE 112)

would eventually be the cause of needed replacements. It would eliminate part failures and break-downs in general, due to the mechanics failure to know what should be serviced—when and how it should be serviced.

I believe that fleet operators would gladly welcome such a system of servicing instructions; fleet mechanics,

too, would welcome such service cards. Both would benefit—the mechanic in the knowledge gained which makes him more of an asset to the operator; the operator in reduced repair bills and lost time.

Considering all angles of the fleet operator, the proposed 14x18 card will be the ideal card. Its cost to the fleet operator will be nil in proportion to the saving of time, labor and money which the operator will receive.

I cast my vote in favor of the pro-

posed service instruction card. Let's have it.

ROBERT KACHMARIK,  
Yard Supt.,  
Russell Coal Co.,  
Denver, Colo.

### Heartily in Favor, Suggests Hole at Top

DEAR SIR:

I am heartily in favor of using index cards in place of service manuals.

These could be located right on the work bench, and be easy to obtain whereas the service manuals are always in the superintendent's desk, just where they shouldn't be.

I think the fleet operators would be willing to pay a nominal sum for such a system. I do think that most of the cost should be taken care of by the vehicle or unit manufacturer. After all, the money spent by him for service manuals is largely money thrown away, because they do not answer their purpose.

I think the size is very acceptable.

I would suggest that a hole reinforced with a metal grommet be provided in the top of card. Many times the mechanic probably would like to hang it near him when working on the truck.

There are so many factors in favor of this type of information as to proper methods of repairs that I doubt if anyone would fail to see the added benefits of such a system.

C. K. COOPER,  
Engr.,  
Socony-Vacuum Oil Co. Inc.,  
Springfield, Mass.

### A Very Fine Setup

DEAR SIR:

I think the proposed Standard Service Instruction Cards for on-the-job use, is a very fine setup. I think the industry, as a whole, has never had the proper service instructions.

I think mechanics would use such instruction cards.

Fleet operators in general would pay a nominal charge for such cards. They should. The know-how is money in their pockets.

I think you have done a fine job thus far. Keep it up.

M. J. DAVIES,  
Shop Foreman,  
Board of Water Commissrs.,  
Denver, Colo.

(TURN TO PAGE 116, PLEASE)



### FULL FLOATING SEMI-AUTOMATIC FIFTH WHEEL

Built In  
30"-33"-36"  
Sizes

Rubber mounted

One-Man  
Operation

Exclusive Lock  
(—it grips both  
neck and shoulder  
of king pin)

The approved standard, engineered for the toughest kinds of use under all possible conditions. Serviced by factory that devotes itself to complete customer satisfaction—doing its part to keep the fleets rolling. Write for details.

ENGINEERED BY

**HOLLAND HITCH COMPANY**  
HOLLAND, MICHIGAN, U. S. A.



## The Hinges of Hell Could Get No Better Heat Treatment ...

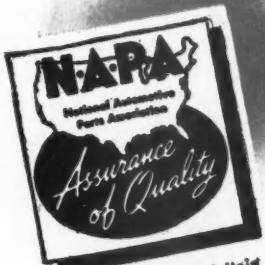
*to give you Mechanics Hand Tools that make money*

A red line appears on the chart of an instrument . . . a tempering furnace at New Britain is under automatic control! That red line records the fact that we are heat treating some Hand Tools exactly right for you . . . right to the precise degree of heat — right to the split second of time — and, right to make the finest alloy steel TOUGH!

You know it takes certain alloys and careful machining to make good Hand Tools. But, it also takes exact heat treating to develop the highest ultimate strength of the steel. Here, on two counts, New Britain Hand Tools are outstanding. First, because the steel that goes into New Britain made Tools is carefully selected, inspected, etched,

tested and examined inside and out. Second, because heat treating at New Britain is an exact science—controlled, as is every major operation in this huge plant, down to the last degree and second.

The entire Line of New Britain Hand Tools is a natural for YOU. These famous Tools have won their reputation for toughness and the ability to "take it" the hard way—**IN SERVICE!** Ask your jobber's salesmen to show you these money-making TOOLS. When you've handled one, you'll want them all — they're that good! The New Britain Machine Co., New Britain, Conn.



The complete New Britain Line for Automotive, Aircraft, General Maintenance & Production Needs is sold by leading Jobbers.

# New Britain

GREATER STRENGTH • BETTER FIT

# HAND TOOLS



The Army-Navy "E" Pennant, with stars, flies over New Britain's plants, signifying outstanding production of machine tools, aircraft engine parts and projectiles.

## LETTERS FROM READERS

(CONTINUED FROM PAGE 114)

### Knows from Experience Cards are "Just the Thing"

DEAR SIR:

I know from experience that a card 14x18 is just the thing for a mechanic. These cards can be slipped in a cellophane holder which we use in our shop and can be put anywhere on the unit and the mechanic can pick up the cellophane holder and not

soil card. This card system is much better than service manual. Should the mechanic start looking in his service manual, he will read more than he can remember. This will retard his job.

I know some local fleet operators wish they had some way to instruct their mechanics and they would be very glad to pay any amount to correct them.

E. W. NAGEL,  
International Harvester Co.,  
Allentown, Pa.

### Accepts Proposed Cards

DEAR SIR:

After reading the article "Standardized Service Instructions" in October issue of COMMERCIAL CAR JOURNAL, we accept the proposed Service Instruction Cards. We believe the cards have the advantage over the manual for on-the-job use. To do a job, the mechanic will refer to a single card instead of a manual.

Many a mechanic has griped and knocked the manufacturer of a vehicle who has issued scant maintenance information to a fleet operator. This is poor advertising. Provide the operator and his mechanic with ample and proper maintenance information, and you will gain good advertising.

FRANK E. SEFTCHICK,  
Fl. Supt.,  
Swift & Company,  
Brooklyn, N. Y.

### Cards a Better Way

DEAR SIR:

In my opinion, the proposed standard service instruction card for on-the-job use is definitely a better way of publishing service instructions than by means of present-day service manuals.

I believe that fleet mechanics would be more likely to use such instruction cards.

Fleet operators in general might show an initial reluctance to paying a nominal sum for such standardized instruction cards, but I feel that they could be convinced of the value of such cards.

As to proper size of card to be used, it seems that a 14x18 is rather large for handling. On the other hand, it might not be possible to show cuts and illustrations on smaller cards.

C. F. ATTAWAY,  
Asst. State Forester,  
Dept. of Conservation,  
Montgomery, Ala.

END

(Please resume your reading on P. 38)



Bert E. Bales, newly appointed sales manager for Universal Battery Co., Chicago

### AND THEY'RE COMING BACK FOR MORE

- The Mason and Dixon Line is one of the many fleets with scores and even hundreds of Edwards' semi-trailers in service. The long life, dependability and low maintenance costs on the job have prompted operators to reorder these famous trailers in preference to all others. For details see your Edwards dealer or write the factory direct.

EDWARDS IRON WORKS, INC., SOUTH BEND, INDIANA

# EDWARDS



# OIL FILTERS

HELP FIGHT INFLATION—BUY VICTORY BONDS

## "A REAL MONEY SAVER"

Invest in AC Oil Filters (the truck and coach size S-type) and you'll save money on oil changes, fuel, and overhaul costs. Here is why:

*Clean oil maintains power longer* because it is free from the dirt that sets piston rings and clogs the slots. Free rings and open slots mean maximum fuel and oil mileage,—another saving. And they postpone overhauls because they retard carbon formation and valve sticking.

*The S-type needs less frequent element replacement.* It's big. It filters efficiently a long time. Your vehicles stay on the road longer. That's a saving, too.

Commercial haulers have proved these AC advantages, in every state, on every kind of run.

### SEND FOR AC SHOP MANUALS

Field Service Department, AC Spark Plug Division, General Motors Corp.  
910 Mott Foundation Building, Flint 3, Michigan

Gentlemen: Please send at once, no charge, the AC Shop Manuals checked:

<input type="checkbox"/> How to Service Spark Plugs	<input type="checkbox"/> How to Service Fuel Pumps
<input type="checkbox"/> How to Service Spark Plug Cleaner	<input type="checkbox"/> How to Service Air Cleaners
<input type="checkbox"/> HOW TO SERVICE OIL FILTERS	<input type="checkbox"/> How to Service Speedometers
<input type="checkbox"/> How to Service Ammeters and other Instruments	

CCJ-1

NAME \_\_\_\_\_  
FIRM \_\_\_\_\_  
STREET ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_

## FRUEHAUF'S TORSION BAR SUSPENSION

(CONTINUED FROM PAGE 57)

ing to unique self-steering properties.

Now let us look at some of the basic features of the suspension from an over-all standpoint. In the first place, the axles have freedom of movement entirely independent of the frame and body. The entire load is suspended on the shackles permitting the cushioning of road shock both in

the lateral and vertical directions. Lateral movement is so controlled that any tendency to tip the trailer due to side forces causes the vehicle automatically to bank against such forces. Another feature of the design is that no brake torque loading or horizontal road shocks are transmitted to the torsion bars. Instead, the resulting reactions are transferred directly into the rigid frame, thus eliminating all tendency to wheel hop or chatter when the brakes are locked.

This freedom of lateral float of the

tandem axles permits of automatic steering or trailing of axles on turns of 240-ft. radius or greater. This is said to practically eliminate tire scuffing for all normal forward travel and also to reduce the pulling effort on curves and straightaways.

By virtue of the proper disposition of shackles, the spring rate and frequency is low at light loads and increases in stiffness progressively with increase in load. The geometry of the shackle mounting is such that it is impossible to bottom the load or to overload the torsion bars.

### Installation and Maintenance

**S**PECIAL attention was given to design details leading to ease of installation, special adjustment, and for maintenance operations. For example, all wearing parts are self-lubricating and sealed for life with the use of O & S pre-loaded self-lubricating bearings. When properly sealed to prevent entry of water and dirt, these bearings give trouble-free service indefinitely. It was observed on test models that no wear occurred on units which had been in service up to 100,000 miles.

Torsion bar mounting has been so designed as to make it a matter of minutes for a complete replacement or for resetting to meet some special operating conditions. By removing the outer cover, it is possible to slide out the torsion bar without difficulty. Similarly, the spring height on either side of the trailer can be adjusted independently to accommodate for eccentric load conditions or for continuous operation on highly crowned roads.

Except for the replacement of a torsion bar or a resetting to meet special operating conditions, as mentioned above, it is unlikely that service adjustments need be made during the life of the vehicle. However, if a torsion bar happens to take on a permanent set for one reason or another, a simple adjustment will bring it back to proper alignment, by compensating for the change in position. In general, the procedure for such adjustment is as follows:

1. Jack up trailer frame so as to relieve the load on the suspension.
2. Remove front cover plates on gear boxes, and remove the splined sleeves.

(TURN TO PAGE 120, PLEASE)

# never GAMBLE ON FIRE PROTECTION...

STANDARDIZE YOUR  
EQUIPMENT WITH

**PYRENE**

You gamble with fire when you install only one type of extinguisher if you have hazards that call for two or more different types. Today's production, industrial growth and building expansion ought to have the maximum fire protection provided by Pyrene equipment. Specifically designed, tested and approved for each particular hazard it will give you maximum fire protection where and when you need it. Determine now whether you have adequate fire protection—if your extinguishers are ready to meet any emergency Ask your Pyrene jobber to show you how to properly protect your property.

for class

**A** fires

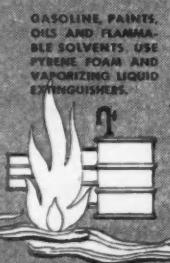
WOOD, TEXTILES,  
RUBBISH, USE PY-  
RENE, SODA-ACID,  
FOAM, CARTRIDGE-  
OPERATED OR PUMP  
TANK WATER AND  
ANTI-FREEZE TYPES.



for class

**B** fires

GASOLINE, PAINTS,  
OILS AND FLAMMABLE  
SOLVENTS, USE PYRENE  
FOAM AND VAPORIZING  
LIQUID EXTINGUISHERS.



for class

**C** fires

ELECTRICAL EQUIP-  
MENT WHERE EX-  
TINGUISHING AGENT  
IS A NON-CONDUC-  
TOR, USE PYRENE  
VAPORIZING LIQUID  
EXTINGUISHER.



**Pyrene Manufacturing Company**

NEWARK 8 NEW JERSEY

Affiliated with the C-O-Two Fire Equipment Co.

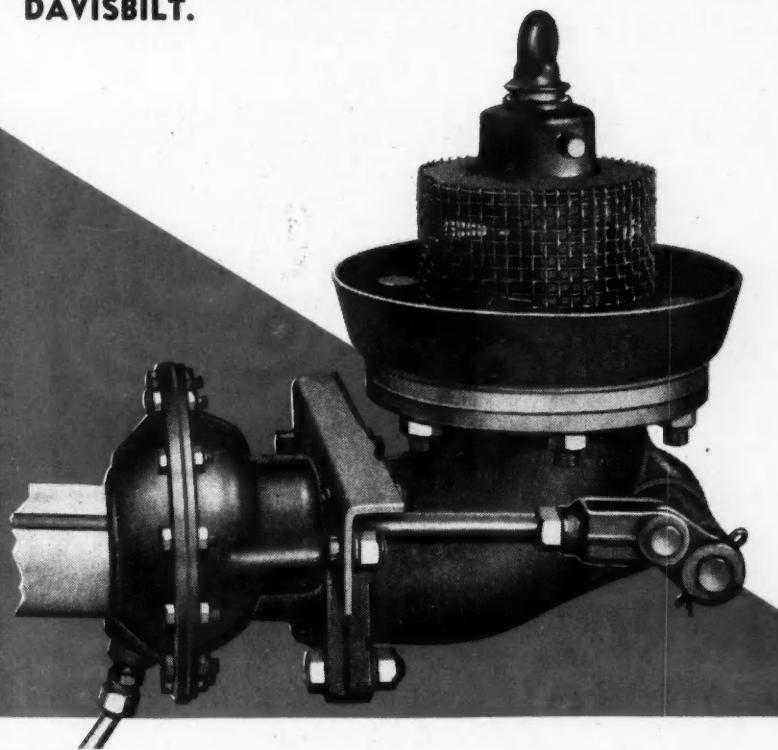
# MIND IF WE CROW?



We can't help feeling puffed up. We did it again... pioneered a revolutionary new safety feature... an air operated emergency valve that is exclusively DAVISBILT.



This is a photo of a trailer in which the new Davisbilt Safety Feature was installed.



## SAFETY... at a finger's flip

No more Samson act to open the emergency valve. A child can operate the New Davisbilt Safety Valve. Just the flick of a little lever with one finger and compressed air does the heavy work.

No more worry about frayed cables breaking or hydraulic systems being "fresh out" just when you need them... BAD! With the new Davisbilt safety valve there is no possibility of leakage affecting efficient performance... no danger of fraying or breaking... and it's corrosion free.

For you maintenance minded men... it has ready accessibility, positive action and minimum maintenance. It is connected to the air supply that activates the brakes... no separate compressor required... special back-pressure valve insures minimum 65# brake pressure... patented parts interchangeable with standard Westinghouse operating diaphragm and control valve.

Brother... have we got something to crow about... you tell us.

SPECIALISTS ENGINEERING IN THE FIELD OF FLUID CARRIERS

DAVISBILT

THE DAVISBILT PRODUCTS COMPANY

Formerly The Davis Welding and Manufacturing Company

CINCINNATI, OHIO

## FRUEHAUF'S TORSION BAR SUSPENSION

(CONTINUED FROM PAGE 118)

3. Place blocks of equal length between the axle pads and sub-frame at the four suspension points of the two axles.

4. Free the jacks to permit the load to rest on the four blocks. This permits all four torsion bars to line up properly.

5. Then replace the splined sleeves,

attach cover plates, and jack up lightly to permit removal of blocks.

In summary, it will be observed that the swinging shackle construction provides a cushion mounting for the body and load which permits them to ride on a level course irrespective of the movement of the axles or of the wheels. In addition, the geometry of the shackles is such as to load the torsion bars in proportion to deflections as well as to limit the maximum load transferred to the spring system. Since road shocks are cushioned both

vertically and laterally and true tracking assured on all forward travel, tire life expectancy is said to be greater than with a single axle having equivalent tire size and load.

END

(Please resume your reading on P. 58)

## FLEET SHOP PROBLEMS

(CONTINUED FROM PAGE 51)

He is in the market for two more mechanics but has not been able to hire suitable men. Few of the applicants interviewed have impressed him favorably. Some have lacked proper experience. Others left garage work for war industries and are now unwilling to do general fleet servicing—claim it is too dirty. They will take bench work but object to getting under a truck.

Two men recently hired failed to report for duty. In some instances, applicants refuse to accept the wages offered. These, incidentally, are about 15 per cent under the average minimum for that area.

### Area Wage Rates Stabilized

NATURALLY, this brings up the subject of wage rates. Since other and divergent factors enter into the situation, obviously, overall compensation varies. However, insofar as "take home" pay is concerned, mechanics' wages seem to be fairly well stabilized throughout the area.

The U. S. Employment Service reports that current "job orders" from fleet shops offer \$1.10 to \$1.25 per hour. Pay expectancy by job registrants run from \$1 up. Thus, offer and demand on wages appear to be in line.

A year ago, fleet shops were offering much the same rates: \$1.12½ to \$1.25. Incidentally, a high percentage of the fleet supervisors interviewed say they are referring their labor requirements to U. S. E. S. with satisfactory results.

In addition to a stipulated hourly pay rate, some non-locally-owned fleet operators offer other inducements. For example, FLEET No. 2 (petroleum products) pays mechanics a starting wage of \$1 to \$1.10 but gives periodic pay raises, beginning with the end of the first six months of employment. Pay boosts climb to

(TURN TO PAGE 123, PLEASE)

**MIRROR MAGIC?**  
YOU KNOW HOW!

Feats of magic always require consummate skill—pains-taking attention to details—years of experience.

Making YANKEE Automotive MIRRORS requires the same magical skill—the same perfecting details—born of more than a quarter of a century of experience. It's therefore no mere accident that YANKEE MIRRORS provide high fidelity vision—without tricky illusions—with-out distortion. No wonder YANKEE MIRRORS have always been the finest in the world—the finest that money can buy!

You'll always find them packed in the familiar Red, Yellow and Blue package.

NO. 241  
REPLACEMENT  
MIRROR HEAD.  
Made to fit the No. 245  
Telescopic  
Adjustable  
Mirror

NO. 245  
TELESCOPIC  
ADJUSTABLE  
MIRROR.  
Adjustable to  
any position.  
For Universal  
mounting on  
Trucks & Buses

REFLECTORS DIRECTIONAL SIGNALS CLEARANCE LAMPS CONVERSION KITS

ASK YOUR  
JOBBER SALESMAN

YANKEE METAL PRODUCTS CORP., NORWALK, CONNECTICUT, U. S. A.

## FLEET SHOP PROBLEMS

(CONTINUED FROM PAGE 120)

a top limit of \$225 per month for a 40-hour week. Overtime is figured at 1½ times base rate. Another inducement is a Retirement Plan for long-term employees.

FLEET No. 3 (package delivery) also has a Retirement Plan. And it has a seniority arrangement, as well. Regular wages paid mechanics by this company are slightly under the local average. However, this shop has no mechanic turnover, so its men must be willing to accept a little less weekly "take home" in exchange for long-range benefits. A possible influence, too, is that the age preference in this shop ranges upward from a 35-year minimum. Older men, the fleet manager claims, are inclined to consider "job security" more important than a few extra dollars in their pay envelopes.

Some fleet supervisors classify and pay their men on a proficiency basis. FLEET No. 4 (bus company) grades mechanics as A and B. The former get \$1.10 to \$1.20, and the latter \$1 to \$1.10. "Helpers" get 70 to 80 cents an hour. FLEET No. 2 (petroleum products) grades all mechanics as Class 1, but helpers are graded as Class 2 or Class 3 with a 10-cents-per-hour pay differential.

### Physical Conditions

DO SHOP physical conditions affect turnover? Apparently not. Of the shops checked, three are fluorescent-lighted throughout and one has a partial installation (over work benches). However, fleet supervisors



"It must have been that new mechanic who used to work for Douglas."

who have fluorescent illumination agree that it results in more and better work output. None of them, however, seems to think that it influences turnover. In fact, one shop having an A1 fluorescent lighting system has a high quitting rate.

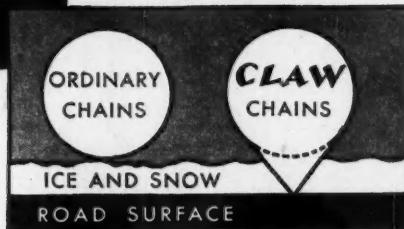
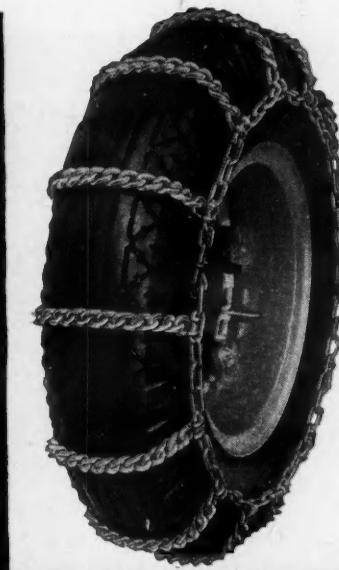
Some shops have showers and some do not. But the presence or lack of this convenience seems to be no factor in the labor turn-over situation. Shops which have showers lose men, while others, having no such installation, do not.

### Causes of Turnover

WHAT causes turnover in fleet shop personnel? The predominant quitting reasons are compensation and hours. As previously stated, night work, where it is required, is a principal turnover cause. The cure, perhaps, is bonus pay for night shift workers.

One operator, who entered the war period with a fleet composed largely of "road wearies," is losing men for

(TURN TO PAGE 126, PLEASE)



The knife-sharp wedge of extra steel bites in at the point of traction—gives a positive grip that assures progress and control through the dangerous going of ice or snow covered roadways.

And Claw links are of a special alloy steel that can take the abuse of those extra miles that make Claws the best "buy"—another reason why motor vehicle operators who watch operating costs insist on Claw Tire Chains.

Though the supply of Claw Tire Chains is still far short of demand, we're doing our best, so treat your chains with reasonable care and when new ones are needed buy "traction insurance" by saying "Claw Tire Chains".

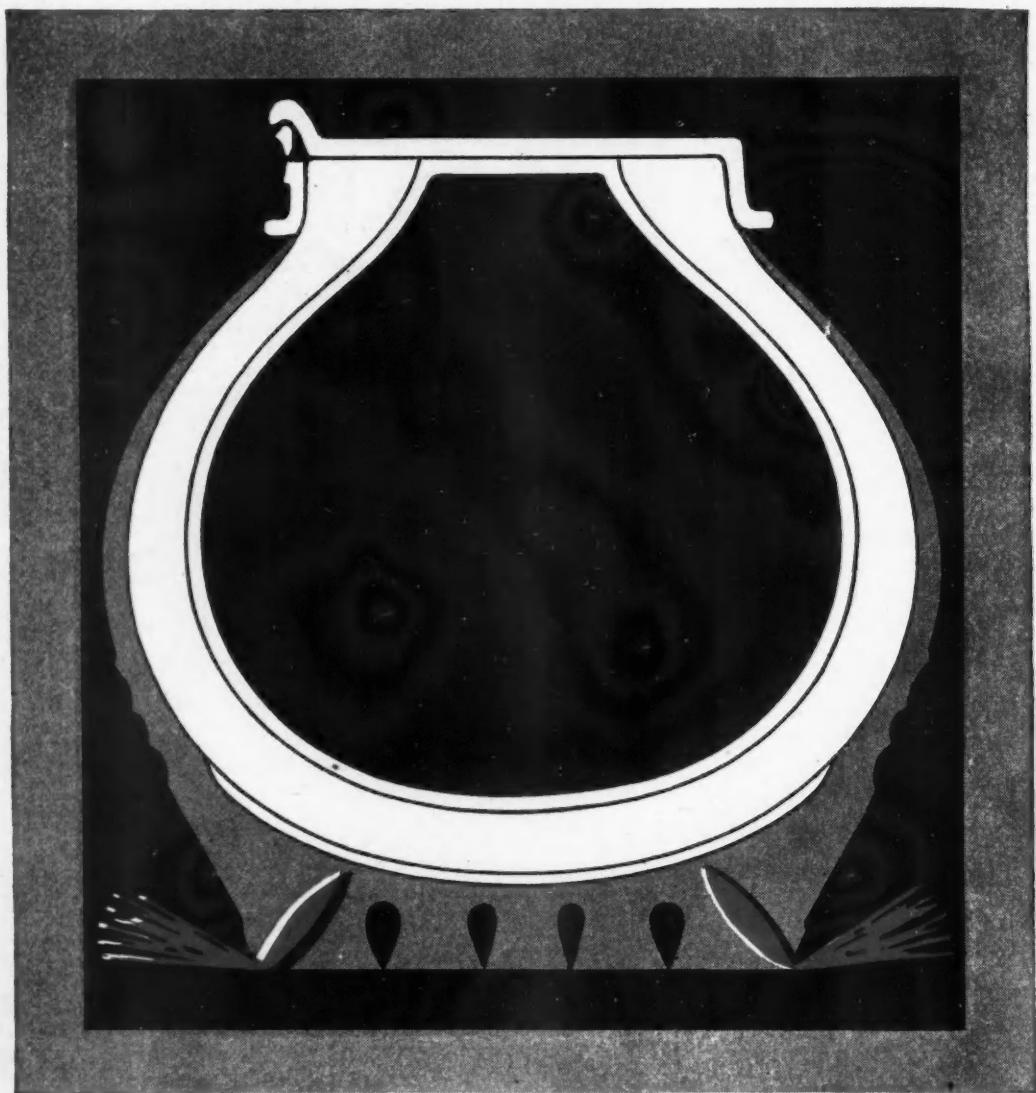


**COLUMBUS-MCKINNON**  
*Chain* CORPORATION

General Offices and Factories: Tonawanda, N. Y.

Plants at Angola, N. Y. St. Catharines, Ont., Can. Vereeniging, So. Africa

*Exi*



*The Only Heat-Vented*

# Proved IN BOTH KINDS OF RUBBER!

*The Exclusive Seiberling Heat-Vent* is the most effective method yet devised for dissipating tire-destroying internal heat *in both natural and synthetic rubber tires!* That has been proved by millions of miles of prewar, wartime and postwar driving—proved on all kinds of roads, at all speeds, and under all conditions of load. On *your* trucks, too, cooler-running Seiberling Heat-Vented Truck Tires will deliver not only more original mileage per dollar but more recaps per carcass as well.

## SEIBERLING

Truck Tire



## FLEET SHOP PROBLEMS

(CONTINUED FROM PAGE 123)

that reason. Mechanics complain that the constantly renewed stockpile of major repair jobs has them discouraged. It is a "patch on patch" proposition, they claim, and nothing they do stays done for any length of time. Perhaps that should not matter to mechanics paid on an hourly basis, but it seems to.

As above indicated, Negro shop

personnel, in the locality surveyed, represents the most difficult part of the overall labor problem. And that fact may be instrumental in changing a long-term employment habit. In some portions of the country, particularly in the South and Southwest, Negroes have been, for years, the favored candidates for fleet shop helper jobs. The word "helper," as used in this sense, has a flexible meaning. It includes such work as washing and polishing, tire changing, parts washing, janitor duties, errand

running and, in some cases, assisting mechanics.

Struck by recurring reports of a high turnover rate among Negro shop employees, we talked at length with one fleet manager on this subject. And here is the story we got: "In pre-war years," we were told, "Negro applicants were plentiful. They were quickly classified as 'employables' and 'unemployables'. A careful screening, always would develop enough 'employables' to fill the need, at any time.

"In a high percentage of cases, the men selected proved to be highly satisfactory. Most of them, unless called up for military service, are still on the job. They appreciate steady, year around employment with a stable company. Hence, they are eager to please. If given intelligent supervision, they are competent, within their ability. And some of them have a good mechanical sense and manual dexterity.

"Now, the situation is different. Employable applicants are few and far between. Most of those who apply we wouldn't hire at any money. Those we might use want fantastic wages—and get them, but not from us. Our price for men inexperienced in garage routine is 65 cents an hour.

"However, unskilled labor regularly is getting \$1 an hour for freight car unloading, work around construction jobs and other tasks classed as 'common labor.' Even at that figure, the available labor supply is rather scanty, and we have heard of wholesalers, with cars of needed merchandise on the track, bidding up to \$2.50 for unloaders."

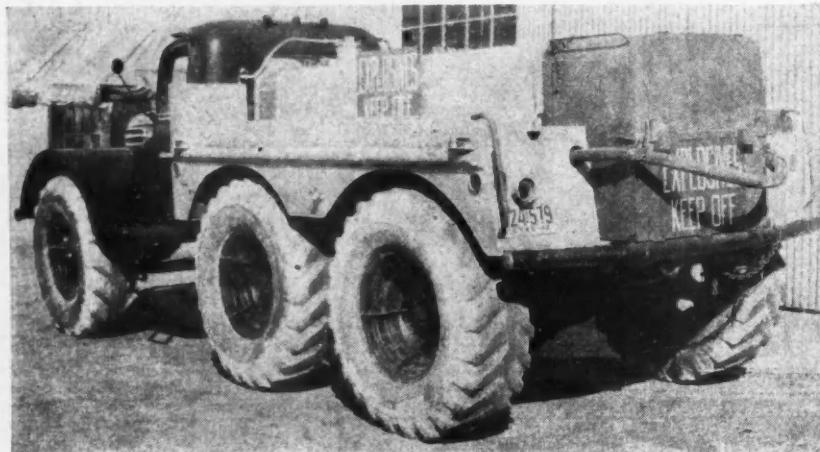
### Solutions Suggested

THE remedy, insofar as fleet shops are concerned, our informant believes, consists of seeking white instead of Negro applicants for helper jobs. As soon as demobilization hits its stride, many released service men, he thinks, will accept such positions—at least while they are readjusting themselves to civilian living again. (Confirmed by the actual experience of FLEET No. 4.)

As a more permanent solution to the helper problem, this fleet manager is seriously eyeing the possibilities of the latent manpower pool provided by city- or county-operated vocational schools. In various locations through-

(TURN TO PAGE 128, PLEASE)

## DUAL DRIVE Fabco Swamp Buggy



This Fabco Dual Drive Swamp Buggy is used to haul water to geophysical core drilling rigs mounted on similar units. With its 14.00 x 24 tires spaced on 54" centers it can take a gross load of 19,000 pounds through an oozy swamp, practically floating out the load. It has also negotiated 48% grades; crossed ditches 4' deep, 12' wide with sides sloping 87%\*. Its ability to climb is limited to tread design only. This unit is just another fine example of Fabco's ability to convert standard equipment to very specialized applications. Write for a copy of Fabco Dual Drive Bulletin.

\*This isn't hearsay—we saw the ditch!

25 Years in this Business

F. A. B. MANUFACTURING CO.

1249 SIXTY-SEVENTH STREET • OAKLAND 8, CALIFORNIA

Dual Drives - 6 and 10 Wheel Units • Logging and Highway Trailers • Frame Extensions

# TODAY'S ANSWER TO WORN MOTORS

MOOG X-PLUS PISTON RINGS



*A different type ring  
for each groove — each  
ring has its job and does  
it—delivers FULL POWER.*

**MOOG**  
**X-PLUS**  
**PISTON RINGS**  
(U. S. Pat. No. 1,771,198)

COMPLETE  
SPRING SUSPENSION  
SERVICE BY MOOG

To restore new car pep and power to Worn Motors is the job of the Nation's Automotive Repairmen. To do the best job you can, to satisfy your customers install the Modern, New Style Moog X-Plus Piston Rings and give worn motors FULL POWER.

Ask your jobber or write for the FULL POWER Story today.

**MOOG INDUSTRIES, INC.**

MOOG PISTON RING CO. ■ ERDORF SPRINGS CO.

MOOG COIL ACTION PARTS COMPANY CO.

General Offices: 4450 NATIONAUX, ST. LOUIS 11, MO.

Warehouses in principal cities

Manufactured for: MOOG INDUSTRIES, INC.

# WHERE'S IT GOING?

"AND THEY CUT DOWN THE OLD PINE TREE AND THEY HAULED IT AWAY TO THE MILL." THIS TIME THOUGH, IT WON'T BE A COFFIN MILL, BUT A MILL THAT MAKES YOUR TRUCK'S ...

- HYDRAULIC FLUID
- CHASSIS



- UPHOLSTERY
- TIRES

(Answer on Page 130)

it takes a CLEAN ENGINE  
to deliver FULL POWER!



A dirty engine cannot produce the power built into it because sludge, gum and acid accumulations create abnormal conditions and "foul up" working parts.

**LOOSITE**, a basic cleaner, rids the engine of all sludge and gum. It reaches valves, rings and pistons; restores their real efficiency. It is safe, easy and economical to use.

After one **LOOSITE** treatment, a can of **SILOO** added with each change of crankcase oil, keeps your engine clean by dissolving immediately any new sludge formations. **SILOO**, the seven-solvent compound with four inhibitors, becomes an integral part of the lubricant itself—cannot be removed by any standard filter. This is important.

A **LOOSITE-SILOO** treatment will show immediate results on any make and model car—regardless of quality or brand of oil used. Fifteen years of service endorses its use.

For sale by leading jobbers everywhere and White Motor Company branches and distributors



If you heat with oil—write for information on **SILOO FUEL OIL TANK SOLVENT**

## FLEET SHOP PROBLEMS

(CONTINUED FROM PAGE 126)

out the country there are a number of such schools having efficiently conducted automotive repair courses. Their equipment is excellent, and the courses themselves are constructively planned. Their students are 'teen-age' youngsters who prefer trade instruction to academic learning.

### Fleet Labor Competition

ONE fleet maintenance manager interviewed stressed the fact that fleet shops are competing with automotive dealer service stations and independent repair shops for mechanic personnel. The wages offered by such shops, in many instances, are higher than those most fleet operators feel they can afford to pay. Especially is this true where the men operate on a flat rate basis. Supported by aggressive "service salesmanship" to build up a work backlog, a fast and accurate mechanic, operating under this system, can earn upwards of \$75 for a 44-hour week.

Since compensation under flat rate is predicated on production, our interviewee has given this system considerable study. While he has found no practical way to apply this method to his own operation, he thinks it might be adapted for use where fleet units are standardized to one manufacturer.

Another fleet supervisor also brought up the personnel competition subject. He claims that dealer service stations, by reason of the bigger "take home pay" they offer, have skimmed off the cream of the mechanic supply, leaving only the slower and less competent men. His remedy: "Closer supervision and stepped up 'helper' service. If a man is stalled by a mechanical problem, advise him. When he needs physical assistance, see that he gets it promptly."

Even before the war, some fleet owners decided to farm out most, if not all, of their maintenance, rather than cope with a foreshadowed shop labor problem. In the area surveyed, there are at least three independent repair shops which specialize in fleet maintenance. They are well equipped, and apparently give satisfactory service.

(TURN TO PAGE 130, PLEASE)

# BLACKHAWK

A JACK THAT'S NIMBLE

A JACK THAT'S QUICK

There's a difference in  
Hydraulic Jacks!

Blackhawk's basic design  
is different — creating faster,  
more dependable  
action! Buy the best —  
buy Blackhawk from your  
Blackhawk Jobber.



A Product of BLACKHAWK MFG. CO.  
Dept. J1116, Milwaukee 1, Wisconsin

## FLEET SHOP PROBLEMS

(CONTINUED FROM PAGE 128)

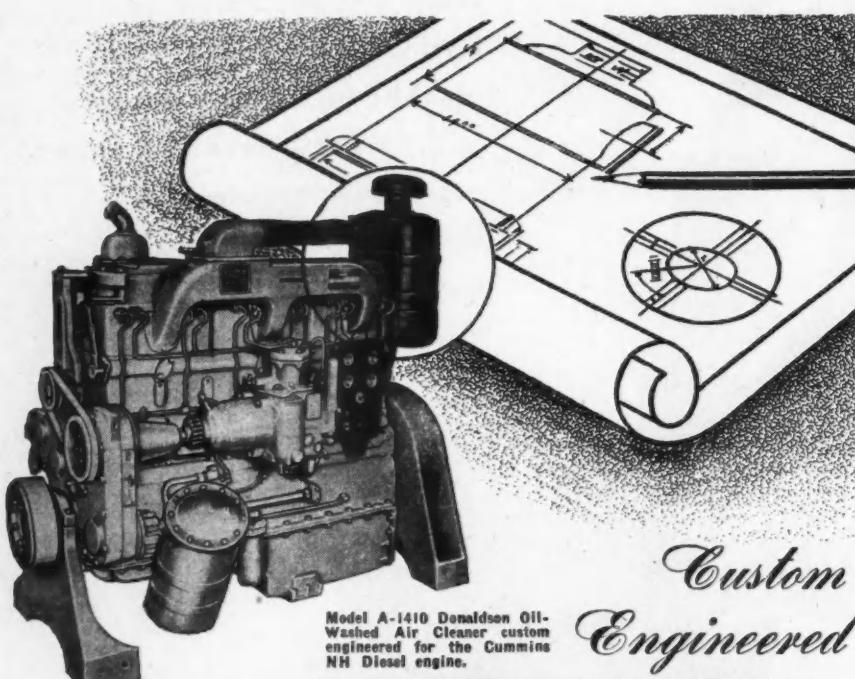
The majority of locally operated fleets, particularly laundries, bakeries and dairy products distributors, prefer to accept the labor headaches of self maintenance rather than to forego its obvious advantages.

In conclusion, our analysis of shop labor conditions, in the locality checked, discloses that (1) the labor supply for fleet maintenance is thin,

(2) the chief reasons for turnover are night work and pay rate, (3) the latter cause may be offset by certain long range benefits, (4) turnover among the less skilled classes of personnel is especially large, (5) relief in the last named situation may be in sight, (6) shop physical conditions do not seem to be an important factor in attracting men or in influencing turnover.

END

(Please resume your reading on P. 52)



Model A-1410 Donaldson Oil-Washed Air Cleaner custom engineered for the Cummins NH Diesel engine.

## air cleaner PROTECTION

The Donaldson trademark on an air cleaner installation is assurance that it is "custom engineered". In our position as the first and now the world's largest manufacturer of heavy duty air cleaners, we know that too much is at stake in the way of power unit operating costs and dependability, to gamble with an air cleaner installation that is not properly fitted to the power unit.

Before Donaldson engineers recommend a particular cleaner, every possible factor including anticipated dust conditions, engine air requirements, operating position, maintenance schedule, and space limitation is considered. And after the unit is de-

signed and built, exhaustive tests, both laboratory and field, are run as a positive check on all-around efficiency.

If you have a problem in dust control to lick, ask us to help. Write our engineering department.



**DONALDSON CO. INC.**

666 PELHAM BLVD. · SAINT PAUL 4, MINNESOTA

## DODGE 1-TON UTILITY

(CONTINUED FROM PAGE 65)

the maximum g.v.w. with accessories is 7600 lb.; the maximum payload is 2000 lb.

The power plant consists of a Dodge engine—L-head type, 6-cyl, 3 1/4-in. bore x 4 5/8-in. stroke, 230.2 cu. in.-displacement, rated 94 bhp. maximum at 3200 r.p.m., with compression ratio of 6.7 to 1. Maximum torque is 185 ft. lb. at 1200 r.p.m. Interesting feature of the engine is the use of a Carter plain tube down-draft carburetor having a nominal size of 1 1/2 in., built with an integral velocity type governor. An oil bath air cleaner of one-quart capacity and an oil filter also are provided as standard equipment.

A mechanical governor is available which provides a wide range of constant speed settings to make it adaptable for belt pulley drive and any other type of auxiliary equipment driven by the power take-off. Speed changes are made by a control conveniently located in the cab.

The power train consists of full floating hypoid type axles front and rear with gear ratio of 5.83 to 1; a four-speed transmission; and a two-speed transfer case connected to the transmissions by a short shaft. The transfer case has ratios of 1 to 1 and 1.96 to 1, the selection of ratio being made by an auxiliary lever in the cab. The front axle is shifted in and out of engagement by a conveniently-located lever. For operation on improved roads the vehicle is to be operated in conventional drive.

Brakes are four-wheel hydraulic, 14 1/8 in. in diameter, 1 3/4 in. wide, front and rear. Wheels are of venti-

(TURN TO PAGE 134, PLEASE)

## ● WHERE'S IT GOING?

### ANSWER

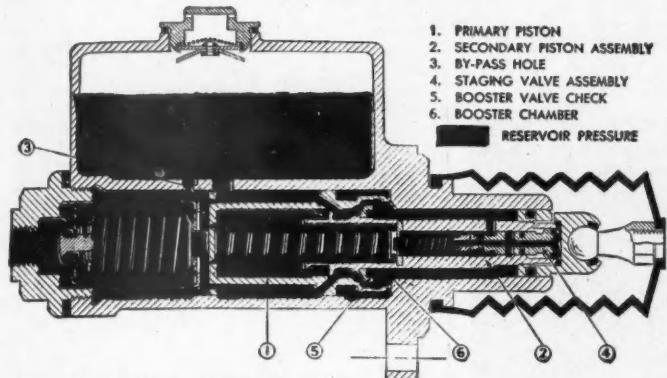
(To Question on P. 128)

Tires. Rosin from pine trees is now used to make synthetic rubber tires that run cooler and wear better. It's a B. F. Goodrich development.

# Eliminates

## VACUUM-ACTUATED "BOOSTER"

### ••• 3 Steps in HYCON Operation •••



1. Brakes in the "released" position.

### No "Booster" Brake Needed

The secret of *controlled braking* in HYCON Brakes lies in a *second piston* in the *compound cylinder*, which develops higher hydraulic pressures without the help of vacuum-air-actuated "boosters." The single HYCON unit performs hydraulically the combined functions of both master cylinder and power brake . . . gives more constant, more positive, more reliable braking control.

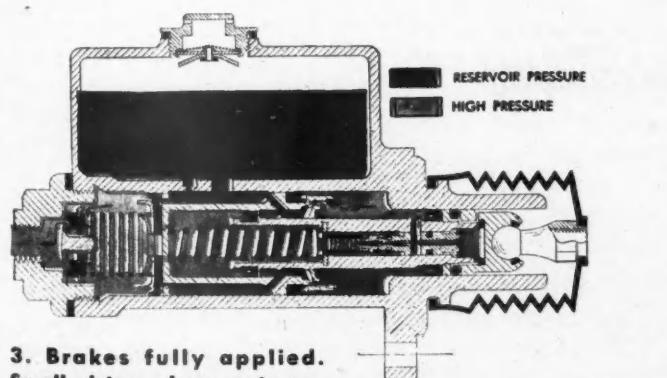
With HYCON, hydraulic pressures are in *direct proportion* to pedal pressures. The correct power is always available to meet load or no-load conditions. By eliminating the *lag* of the atmospheric pick-up on vacuum brakes, it will stop vehicles more quickly.

### Saving Split-Seconds on Stops

The higher safety factor in HYCON braking results from quicker stopping; better control. The unit occupies no more space on the chassis than the original equipment master cylinder; requires no additional tubing, and can be installed within an hour.

### Send for Demonstrator Unit!

HYCON compound cylinders are now available to replace 1½" and 1¾" Di. original equipment master cylinders. Order a demonstrator unit from your local power brake distributor, or write direct to The New York Air Brake Company, 420 Lexington Avenue, New York 17, New York.



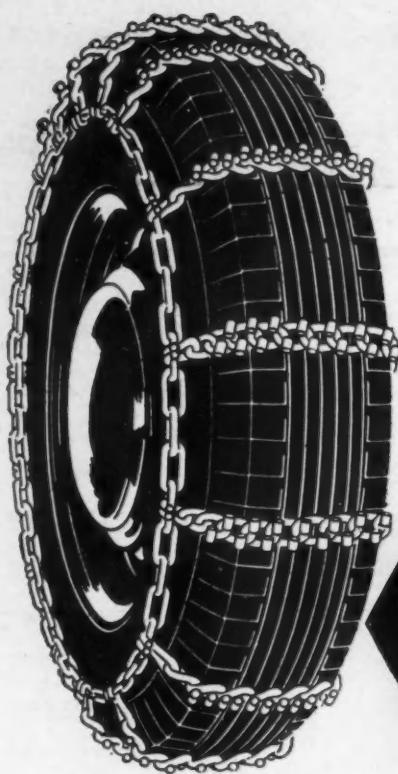
2. Initial application. Large piston displaces fluid to expand brake shoes into contact with drums.



3. Brakes fully applied. Small piston advances to create high hydraulic pressures.

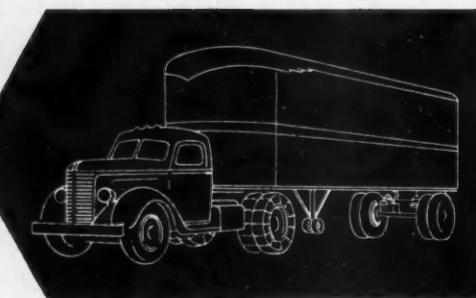
**THE NEW YORK AIR BRAKE COMPANY**

420 Lexington Avenue, New York 17, New York



# MCKAY

## Multi-Grip TIRE CHAINS



### *with Double Traction Bars*

Two traction-bars per link give McKay *Multi-Grip* Tire Chains extra grip and extra efficiency which means safe, worry-free winter driving.

Both traction-bars and links are made from the same tough, case-hardened steel. Bars are welded to links at scientifically determined angles which utilize gripping power of both longitudinal and end surfaces. Entire surface of both bars contacts the road. Bars "bite in" all the better as they wear.



**"THE LINK  
DOES IT"**

### **MCKAY** Multi-Grip Advantages



- Two traction-bars per link mean double efficiency.
- "Traction effectiveness" increases with wear.
- Double-bar design gives more traction area.
- Side-slip and power-skids are minimized.
- Traction-bars postpone link wear, give extra miles.

#### **PLUS "EASY-TO-FASTEN" KLIP-LOCK**

Exclusive *Klip-Lock* draws chain up tightly, locks securely . . . unfastens with one hand. No jamming . . . no clogging . . . no sticking!



*Multi-Grip* and Regular Tire Chains are  
DISTRIBUTED THROUGH JOBBERS

**THE MCKAY COMPANY**  
PITTSBURGH, PA. • Sales Office: YORK, PA.

TIRE CHAINS . . . COMMERCIAL CHAINS . . . WELDING ELECTRODES

### DODGE 1-TON UTILITY

(CONTINUED FROM PAGE 130)

lated disc type 16 x 6.50 or 16 x 5.50, depending upon tire size. Steering gear is of heavy duty type with a ratio of 23.2 to 1 for steering ease. Electrical equipment includes a 95 amp.-hr. battery and 35-amp. generator with full voltage and current regulation.



*Belt pulley unit, mounted on rear cross member of the truck, is available for driving auxiliary equipment*

A power take-off with front and rear drive is available for mounting on the left side of the transmission. Through the rear drive shaft it drives either stationary auxiliary equipment or equipment towed behind the truck.

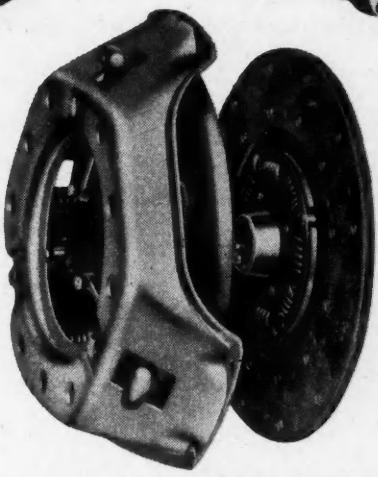
A front-mounted power winch of 75-lb. capacity is available, for various purposes, with 250 ft. of 7/16 in. steel cable. Its power is controlled from the inside of the cab, and it is driven by the front drive of the power take-off.

A 9-in. diameter belt pulley drive is available for powering many items of auxiliary equipment, such as circular saws, silo fillers, pumps, mixers, corn huskers, separators, or threshers and feed grinders. It provides a belt speed of 3100 r.p.m. Mounted at the center of the frame rear cross member with four bolts, the pulley drive is easily detached, and a protective cover is installed over the drive shaft when not in use.

An adjustable rear-mounted draw bar assembly is available where desired. A pintle hook is available for mounting on the frame rear cross member, where equipment to be towed has a towing eye arrangement. It also can be used conveniently in connection with a chain or cable for all types of pulling.

**END**

*(Please resume your reading on p. 66)*



**QUALITY MANUFACTURE  
MEANS  
DEPENDABLE PERFORMANCE**

The lively, easy pedal action and always dependable operation of the Long clutch result from able design, ably translated into the finished product. And behind the decorative grilles of quality cars, trucks and buses, Long Radiators maintain the same fine standards in heat exchange efficiency.  
**LONG MFG. DIV., BORG-WARNER  
CORP., DETROIT AND WINDSOR.**

**LONG**  
CLUTCHES • RADIATORS • OIL COOLERS

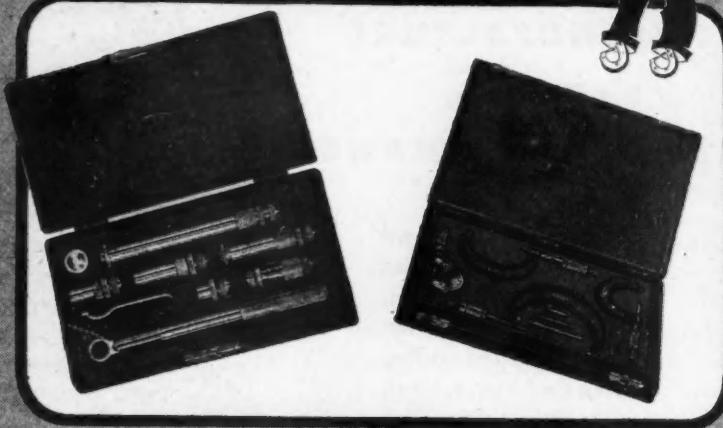
# WHAT'S IT MEAN?



- NOT OFFICIALLY INDICATED BY NUMBER
- NEW ORDER IS BADLY NEEDED
- NOTIFY OWNER IF BROKEN NOTICEABLY
- NOT OTHERWISE INDEXED BY NAME

Answer on Page 138

*Central Mike Says:  
"Every Mechanic Needs  
These Two Sets!"*



### SET NO. 808

Inside Micrometers  
Range 1 1/2 to 8 inches.  
**\$12.00**

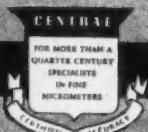
Complete with Extension  
Handle and Deluxe Plush-  
Lined Case



WRITE TODAY FOR CATALOG No. 17  
The entire line of individual micrometers and complete sets illustrated and fully described.

THE CENTRAL TOOL CO., AUBURN, RHODE ISLAND

**CENTRAL**  
*Certified Accuracy*  
**MICROMETERS**



## WANNA BUY A TRUCK?

(CONTINUED FROM PAGE 47)

for commercial operation? What can you do with a Diamond T Wrecker? Find the answers and win a fortune.

Basically, it makes plenty of sense to consider military trucks in a commercial light. Army trucks and civilian trucks are sisters under the tin; practically every Army truck is an adaptation of a commercial model, if not in whole then at least in component parts. You never saw a jeep before the "emergency," but the jeep engine, axles, gear boxes and controls are all thoroughly civilian. We have few, if any, military freaks.

The only thing left to consider is whether the details of military design hang too big a handicap on the Army truck in the keen competition of commercial life. But even so, in many cases such handicaps may be turned into advantages by clever operators who can think of novel ways of converting military features to profitable use.

### The Jeep, Pro and Con

FOR instance, the jeep has been damned as too expensive to operate for the load it will carry; it is geared down too far they claim. But the jeep is cute, it has won the hearts of the country—and therein lies an advertising value. Paint it red, put the name of your meat market on it in big white letters and every time you deliver two pounds of chops to Mrs. Clancy the whole neighborhood will be reminded that you are in the flesh and fowl business. The advertising value more than offsets the slightly higher cost of operation.

(TURN TO PAGE 138, PLEASE)

William S. Campbell has been appointed service sales manager of Velvac, Inc., Milwaukee, Wis.



**FOR UTMOST RELIABILITY  
IN THE  
HEART OF THE  
FUEL SYSTEM**



AVAILABLE FROM THE  
AC WHOLESALER

Your AC Fuel Pumps give you such dependable service and long life because *highest quality is built in*, from blueprints to finished products. There is one sure way to protect that reliability and durability,—insist upon AC pumps and parts.

**FOR REPLACEMENT**—install new AC Fuel Pumps or Authorized Factory Rebuilt AC Fuel Pumps.

**FOR REPAIRS**—use AC Diaphragm or Parts Kits.

#### QUALITY FEATURES

- Careful control of pressure and flow assuring correct fuel supply.
- Accurate hardening, precision machining of parts essential to long life.
- Accurate control of spring tensions and temper.
- High, and controlled, pin hardness.
- 4-layer patented-impregnation diaphragms of special airplane cloth.
- Carefully finished rocker arm pads, located to center on cam.
- Split-hair rocker arm clearance and control of pad hardness.
- Uniform pull rod hardness at pin holes.

# AC FUEL PUMPS

— SEND FOR AC SHOP MANUALS —  
Field Service Department, AC Spark Plug Division, G. M. Corporation  
910 Matt Foundation Building, Flint 3, Michigan

Gentlemen: Please send at once, no charge, the AC Shop Manuals checked:

<input type="checkbox"/> How to Service Spark Plugs	<input type="checkbox"/> HOW TO SERVICE FUEL PUMPS
<input type="checkbox"/> How to Service Spark Plug Cleaner	<input type="checkbox"/> How to Service Air Cleaners
<input type="checkbox"/> How to Service Oil Filters	<input type="checkbox"/> How to Service Speedometers
<input type="checkbox"/> How to Service Ammeters and other Instruments CCJ-1	

NAME \_\_\_\_\_

FIRM \_\_\_\_\_

STREET ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

## WANNA BUY A TRUCK?

(CONTINUED FROM PAGE 136)



**1/2-Ton Jeep**

Accentuating the positive of jeep design, the small size of the vehicle makes it easy to maneuver in heavy city traffic, and easy to park.

Time being money in business life, the jeep can thus also be a profit-saver. With the jeep, city and high-

way work demands one major alteration; removal of the live front axle. Where there's any kind of road at all, there's no use for the added traction provided by front-wheel drive. Simply operating in rear-wheel drive alone and forgetting the front-wheel drive is not enough; power is wasted just by turning the ring gear and pinion, differential and propeller shaft, not to mention maintenance and lubrication that have to be expended on the rotating but useless appendage.

On the other hand, in all off-the-road operations, front-wheel drive is an asset. Surveyors, geologists searching for oil and mineral deposits, and timber prospectors would find front-wheel drive invaluable.

### 3/4-ton Trucks



**3/4-Ton Weapons**

THE Army's 3/4-ton truck, such as the weapons carrier or command car, steps into a fast class in commercial life—it must compete with the 1/2-ton pickup in small deliveries and light hauling. And the 3/4-ton has some very serious disadvantages for ordinary commercial work—the body styles for one. The command car has a truck engine and chassis, and a touring car body. There seems little to do with this combination except remove the body and put on something more suited to hauling. The weapons carrier has a "soft" (tarp and bows) body that might be all right for hauling such things as garden produce, but your driver would never forgive you if you presented him with the soft top to work in. Especially if he's wearing a little gold button in his lapel. The carryall might do as a panel-delivery, but it still steers like a truck.

In a nutshell, the 3/4-ton is just too much truck for the work it can do in civilian life. Its 230-cubic-inch engine is a fuel-eater compared to the 216-cubic-inch engine of the usual 1/2-ton; engineered for a rougher existence, its replacement parts are heavier and much more expensive than the 1/2-ton's. A replacement engine would cost you \$316.99 compared to about \$159 for the 1/2-ton, a replacement steering gear is \$17.25 compared to \$11.25 for the 1/2-ton.

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(TURN TO PAGE 142, PLEASE)

### ● WHAT'S IT MEAN?

#### ANSWER

(To Question on P. 136)

Not otherwise indexed by name, meaning that there is no more specific designation of the item on the National Motor Freight Classification.

## THE RIGHT LATHE FOR ALL SERVICE JOBS —SOUTH BEND PRECISION LATHE

A South Bend Precision Lathe will increase the efficiency of your shop, enable you to turn out a greater number of jobs more quickly, and earn greater profits for you. Many repair parts can be made quickly and profitably from materials that otherwise might be consigned to the scrap heap. Precision turning and straightening jobs can be performed easily and economically. Truing, refacing, threading, reborining—

and a score of other jobs—can be done just as readily right in your own shop.

A versatile South Bend Lathe is the logical lathe for the service shop. Write today for Catalog 100-D which illustrates in full color and describes the complete line of South Bend Precision Lathes and attachments and accessories for use with them. It will be sent postpaid and without obligation upon receipt of your request.

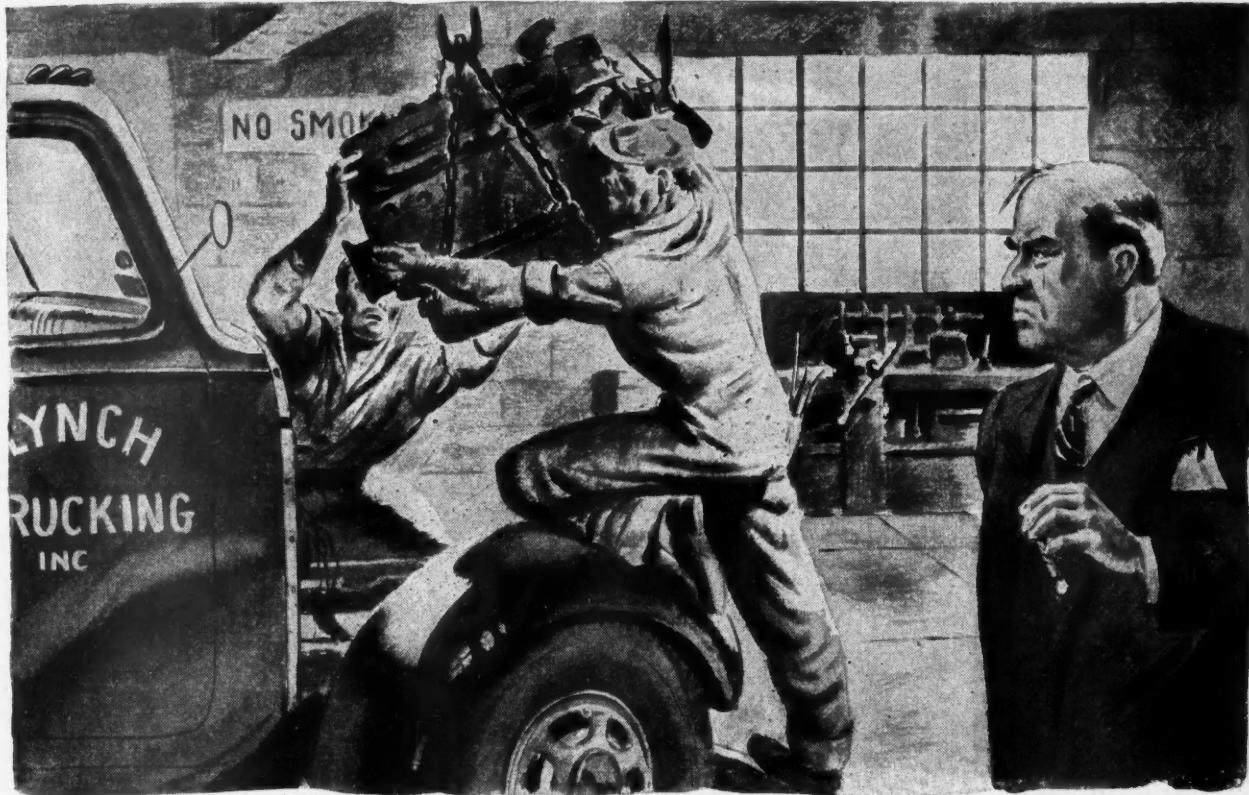


Lathe Builders Since 1906

**SOUTH BEND LATHE WORKS**  
445 EAST MADISON STREET • SOUTH BEND 22, INDIANA



# for ARMY TRUCKS?



## The Famous Veedol P. M. Plan is waiting for you, too!

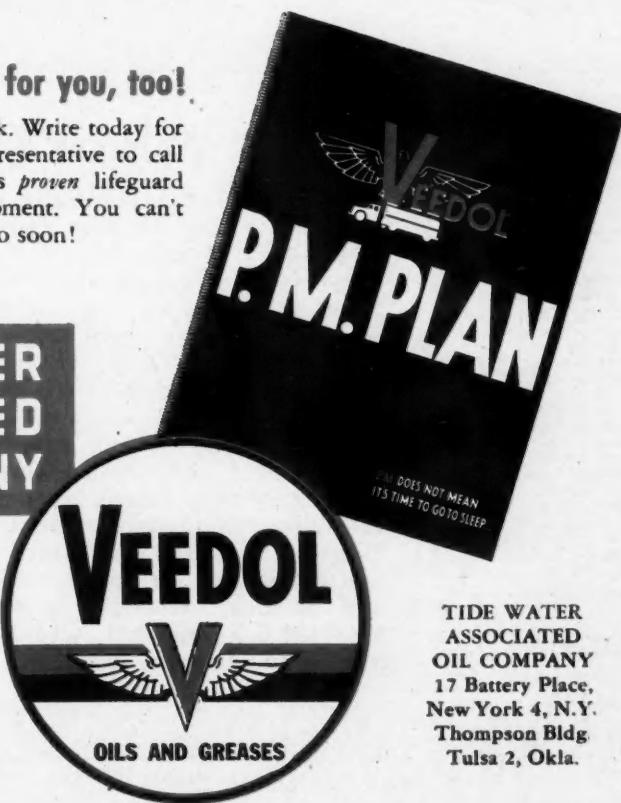
The Veedol Preventive Maintenance Plan is doing a whale of a job for over 800 hard-working fleets. It can help yours. The plan can be tailored to fit any number of units—and costs

only 18¢ per truck. Write today for a Tide Water representative to call and go over this *proven* lifeguard for rolling equipment. You can't get started any too soon!



THEY DID THEIR JOB...LET'S DO OURS.  
FOR THE LAST TIME, AMERICA...

✓ Buy Victory Bonds



TIDE WATER  
ASSOCIATED  
OIL COMPANY  
17 Battery Place,  
New York 4, N.Y.  
Thompson Bldg  
Tulsa 2, Okla.

# WHO SAID IT?



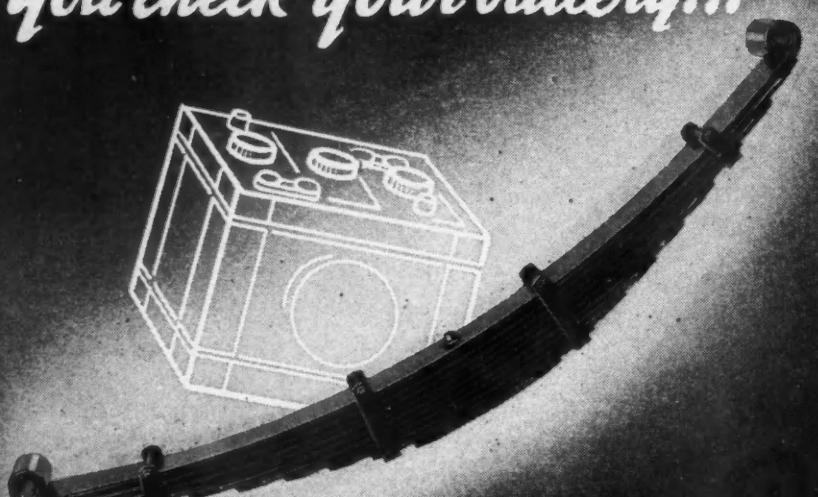
"RESEARCH IS JUST  
ABOUT 90% GETTING  
ALONG WITH THE  
FELLOWS YOU'RE  
WORKING WITH."

CHARLES F. KETTERING  
 RUBE GOLDBERG

CHARLES A. EDISON  
 HENRY FORD

Answer on Page 146

## You check your battery...



## ... but who checks your SPRINGS?

Call nearest Rowland Distributor. He's supplied by these branches:

ATLANTA 3, Ga., William and Harvey Rowland, Inc., 449 Marietta St., N. W.

BIRMINGHAM 3, Ala., Birmingham Spring Service, Inc., 2017 Avenue B, South

CHICAGO 16, Ill., William and Harvey Rowland, Inc., 2732 Indiana Avenue

JACKSONVILLE 4, Fla., Jacksonville Spring & Alignment Co., 137 Jefferson Street

PHILADELPHIA 30, Pa., William and Harvey Rowland, Inc., 1414 Fairmount Ave.

PITTSBURGH 13, Pa., Point Spring Co., 419 Melwood St.

The services of experienced spring men are vital today to fleet operators who must overload aging vehicles to meet re-conversion transportation requirements. Such specialized service is available from nearly a thousand Rowland distributors—in hundreds of cities. These men know springs—how to make them deliver a full lifetime of service, what to look for that might cause premature failure and how to prevent it. They offer a wealth of practical experience gained over the years in servicing thousands of trucks and buses. There's a Rowland distributor near you—call on him for periodic spring inspection and service, as well as replacement SPRINGS, mufflers, wheel suspension parts and universal joints.



WM. and HARVEY **ROWLAND** INC.  
FRANKFORD, PHILADELPHIA 24, PENNA.

SPRINGS • MUFFLERS • WHEEL SUSPENSION PARTS • UNIVERSAL JOINTS

150th ANNIVERSARY OF AMERICA'S OLDEST LEAF SPRING MANUFACTURER

## WANNA BUY A TRUCK?

(CONTINUED FROM PAGE 138)

On all ex-Army trucks, this same high-cost-of-replacements stares you in the face. It's something to think of when the man with the hammer asks for your bid.

Using the 1½-ton weapons carrier for general hauling has all the disadvantages of the ¾-ton and one of its own—the tandem rear axle—it has just that many more tires to wear out. There is, of course, the faint possibility that you are in the business of hauling heavy-things-in-small-packages like metal ingots, sheet steel, or bricks, and in this case the extra brawn in the two rear axles will give you service. But like all Army trucks featuring extraordinary tractive ability, the ¾-ton and the 1½-ton seem best suited for the farm and the tall timber. In this connection, a northwestern truck distributor pointed out one special advantage of the 1½-ton that comes, strangely enough, from its low silhouette. "That low silhouette would be fine for work in orchards under the low trees, especially in combination with the load-carrying ability which you need in harvesting fruit."

### 2½-ton Trucks and Tractors

THE 2½-ton 6x6 has been called by many GI's "the best-engineered military truck in the world," and one middlewestern commercial hauler expressed the opinion that it would be a good truck for local heavy hauling.



2½-Ton Cargo

2½-Ton Dump

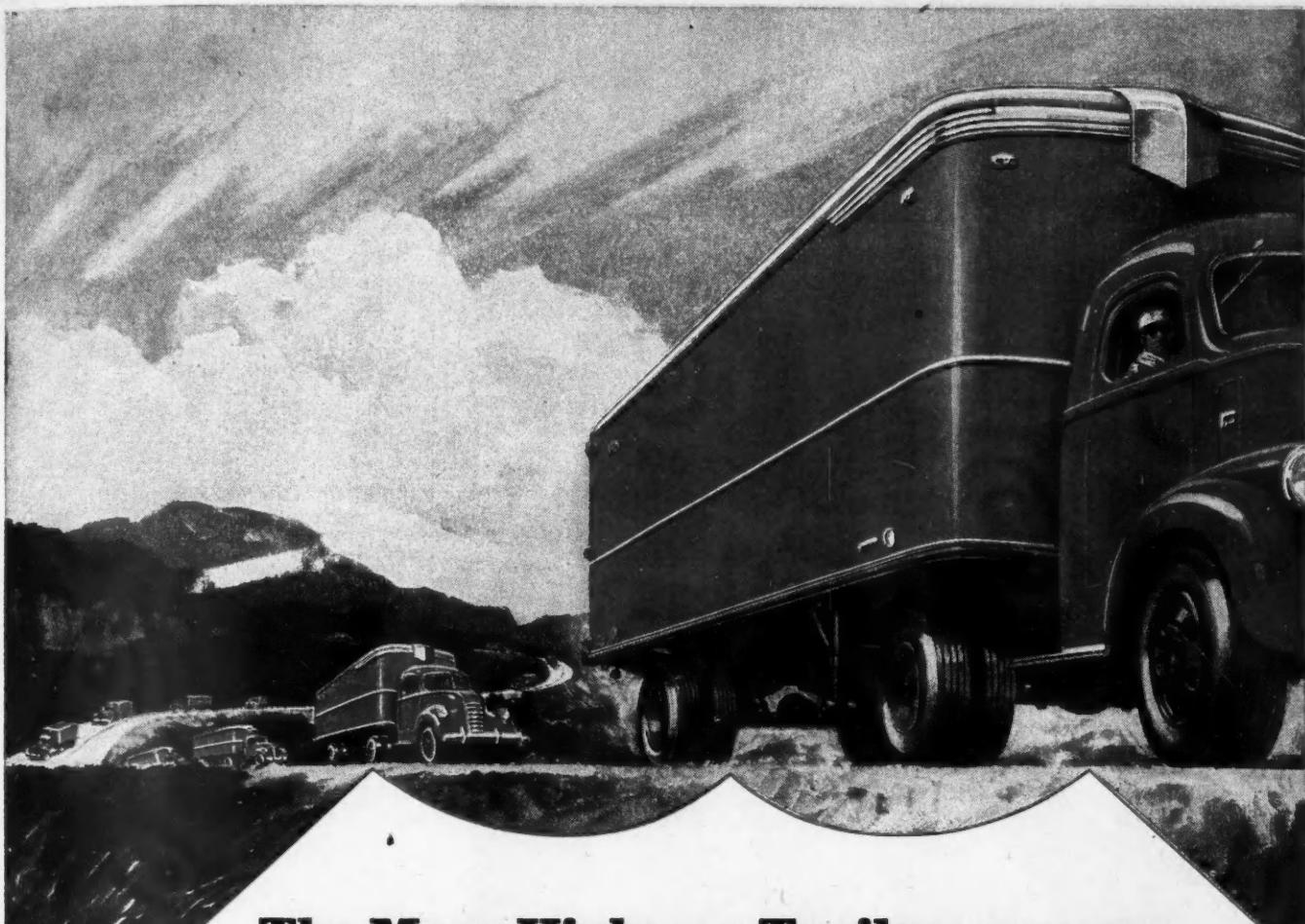


2½-Ton Tank

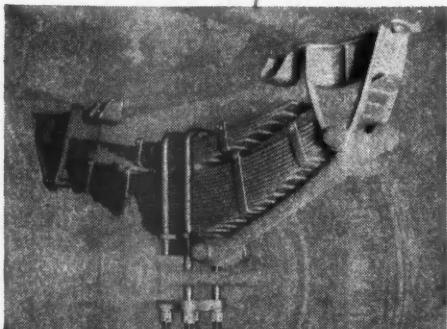
2½-Ton Tractor

But the 6x6 suffers the same disadvantage as the 1½-ton—it's got too many feet. Tire expense would be needlessly high in long-haul operation. And again, the soft cab is a disadvantage in bad weather.

(TURN TO PAGE 144, PLEASE)



## The More Highway Trailers you use, the Greater your Savings



Highway slip-end roll-action springs require no shackles. Effective spring length varies in proportion to load for easier riding.

**T**HREE'S a "conversion" going on that has nothing to do with war, as more and more fleet owners discover the lower ton-mile costs and longer life of Highway "Freight-masters" and "Clippers." Many of them are "converting" to Highways as replacements are needed.

Highway Trailers' economy is not happenstance; It is the result of thorough familiarity with motor transport problems, acquired through more than a quarter-century of successful trailer engineering experience. Highway's is not an assembling operation. Most of the manufacturing is done in Highway's own modern plants, which include the longest straight-line assembly line in the trailer industry.

Write today for your free copies of the latest Highway booklets, giving complete information and detailed illustration of the many points of Highway superiority. You will quickly learn why it pays to let all your trailers be Highways.

### **HIGHWAY TRAILER COMPANY**

*Factory and General Offices, Edgerton, Wisconsin*

Truck Trailers and Bodies • Earth Boring Machines  
Winches and other Public Utility Equipment

# **HIGHWAY** AMERICA'S QUALITY **TRAILERS**

*This  
Book...*  
**REVOLUTIONIZED  
MATERIAL  
HANDLING**

...it defined and crystallized  
the unit packaging method



The publication of this book  
started men of industrial  
plants and railroads thinking  
along new lines.

Out of this book stemmed the material handling principles and methods that have enabled the Army and Navy to successfully handle in this war the burden of supplies, munitions and equipment.

Use the coupon below for your copy.

**CLARK TRUCTRATOR DIVISION**

1045 JAMES STREET • BATTLE CREEK, MICHIGAN

I would like a copy of your book "CLARK CARLOADER METHOD"

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

Zone \_\_\_\_\_

State \_\_\_\_\_

10-22

**WANNA BUY A TRUCK?**

(CONTINUED FROM PAGE 142)

Such trucks as the 2½-ton dump can jump right into civilian life without even a change of uniform. Working under a power shovel, dump trucks are normally given all the load that can be piled on. When such loads consist of broken brick and similar heavy rubble, clay or wet earth, the tandem rear axles are in their element.

The dream of some GI's is to start in with a little service station in a small or medium-sized town and build up a number of allied services on the side. One of these would be delivering fuel oil; the 2½-ton, 750-gal. tank truck sounds right for the job. But it must be remembered that at least twice that load is normally carried on commercial tankers in the 2½-ton class without a tandem rear axle. And here it is not simply a matter of obtaining economy by overloading; the capacity of the tank is fixed.

The usual recommendation in cases like this where the Army truck doesn't quite fit, is "modify it." But the business-wise GI will tote up the cost of all these modifications, add them to the initial cost of the truck and decide whether he's still getting a bargain. It's easy enough to say, "Knock out the front-wheel drive and put on a new body," but it's all hand-tailoring and likely to run into important money.

In the 2½-ton and 4- or 5-ton truck tractor department, especially the 4x2's, the prospective vet will be buying right into a truck that is already a commercial standby. No guesswork about it; the same goes for the semi-trailers they pull.

**Heavy-Duty Vehicles**

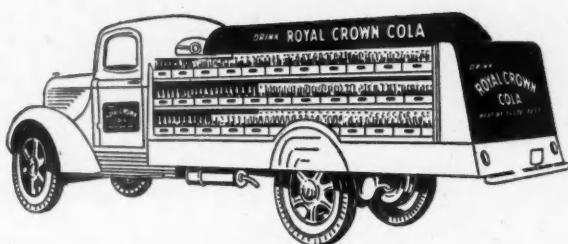
WHEN it comes to wreckers, the opportunities are much whittled down. In the MAM company the wrecker was good for any and everything, but a sawed-off old Cadillac with a superstructure can be seen doing the same thing on smooth streets and highways. However, in rough occupations like lumbering, the wrecker may find a home.

For trucks above four tons, the field is even smaller. As a matter

(TURN TO PAGE 146, PLEASE)

**"Run" a Complete...**

**ADVERTISING PROGRAM  
ON YOUR TRUCKS**



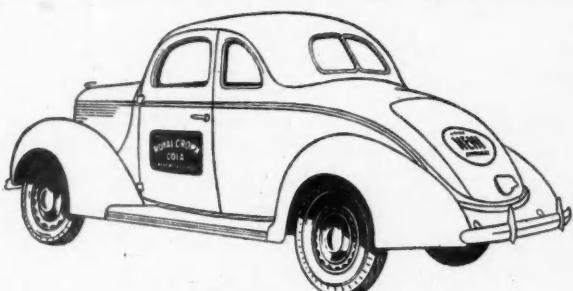
**BEVERAGE TRUCK**

Effective use of top-panel, rear and cab door of "special body" trucks.



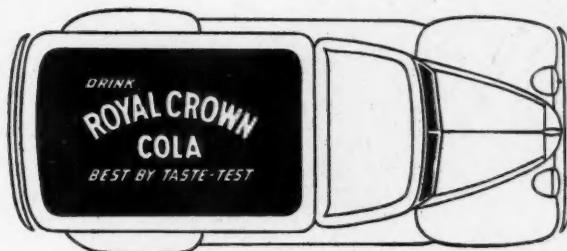
**PANEL TRUCK**

This body style affords an ideal utilization of side panel, rear and cabs.



**PASSENGER COUPE**

Even sales or business cars offer an excellent spot advertising opportunity.



**TOP OF CARS AND TRUCKS**

Truck-top advertising is becoming popular in "tall-building" areas.

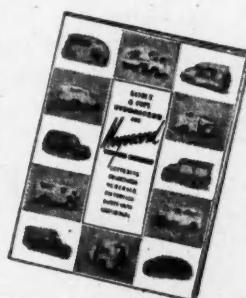
*with* **MEYERCORD TRUCK DECALS!**

Observe the effective, non-cluttered use of space as shown in Royal Crown's *complete* Meyercord Truck Decal advertising program. Then remember that the *space* is free. It doesn't cost you a cent. Utilize these or similar areas on your own trucks with Meyercord Decals for lasting, colorful "selling on the run." Meyercord Truck Decals are economical for a dozen trucks or a thousand. They're durable, washable, weather-resistant and can be made in any colors, size or design. Over-

night application saves off-the-street time . . . and they stay "put." Free designing service. Ask for details. Address inquiries to Dept. 32-1.

**FREE! TRUCK VISUALIZER**

Contains helpful hints on lettering, decorating; with outline diagrams for experimental designing of many body types—from panel deliveries to vans and tank trucks. Send for your free copy . . . TODAY!



**THE MEYERCORD CO., 5323 WEST LAKE STREET • CHICAGO 44, ILLINOIS**

## WANNA BUY A TRUCK?

(CONTINUED FROM PAGE 144)

of fact, it gets so small that maybe it disappears altogether. A 6-ton, 7½-ton, or 10-ton prime mover is no trifling matter. A lot of truck, and unless the prospective businessman has some very clearcut ideas on what he's going to do with it, he'll find himself with a white elephant in O.D. paint on his hands. For one thing, state weight laws put

a very definite kibosh on operating these behemoths over their nice clean roads.



4-Ton Wrecker 7½-Ton Prime Mover

In the beginning, Uncle Sam designed his trucks with an eye to angle of approach and departure, flotation on soft terrain, heavy-duty pulling and carrying ability. Did all this

make Army motor transport too musclebound for life in the smooth-road civilian world? The answer is yes . . . no . . . and maybe. It all depends on what you're going to do, how you are going to do it and where.

Do your dreaming with paper and pencil.

END

(Please resume your reading on P. 48)

## NEW PRODUCTS

(CONTINUED FROM PAGE 61)

high spots caused by misalignment and distortion. The tool is said to insure 100 per cent lining to drum contact. It eliminates squeals, side pull hard pedal and makes second adjustments unnecessary, according to the manufacturer.

Use Free Postcard For More Details.

### P209. Portable Fast Charger

The Baldor Electric Co. of St. Louis, Mo., announces the development of a fast battery charger, Model C-80. The charger, according to the manufacturer, incorporates several new features including a discharge test of each battery cell, a completely automatic charging unit and a built-in desulphator.

The charger is said to analyze a battery in 30 seconds, to charge the battery in about 30 minutes at an adjustable rate up to 80 amp.

The unit is portable; plated handles allow the operator to tip unit and move it in wheelbarrow fashion. Wheels are of durable 8-in. diameter rubber. The charger is equipped with a heavy duty, a.c. cord 15 ft. long, 7-ft. d.c. leads and a heavy bronze clip of 300 amp. hr. capacity.

Use Free Postcard For More Details.

END

(Please resume your reading on P. 62)

## ● WHO SAID IT?

## ANSWER

(To Question on P. 142)

Charles F. Kettering, vice-president and research director of General Motors . . . among whose contributions to the world are the self-starter, ethyl gasoline and the hypotherm.

# GUNITE



## BRAKE DRUMS

### A TRIAL WILL TELL

Many of the present steady users of GUNITES were honestly skeptical of the claims we make — but a thorough test of one trial set of drums convinced them that GUNITES are superior on every basis: cost per mile, lining life, brake efficiency, and interval between adjustments. Try a set yourself, and see how you get greater value per dollar. Buy GUNITES — for better braking.



 GUNITE BRAKE DRUMS . . . FOR TRUCKS, TRACTORS, TRAILERS and BUSES

# Look to AUSCO

## For the Latest in Mechanical Jacks



No. 379 J  
Screwtype Axle  
Large, heavy sled base,  
easily placed, "stays  
put." Telescoping steel  
tubes protect and help  
guide screws to extreme  
heights. Fits under low  
axles, gives ample lift for  
complete clearance. Com-  
pact.



No. 650 J Friction  
Bumper Jack  
Friction type, sure and sim-  
ple. Lifts 'way up in a few  
strokes, lowers quickly, eas-  
ily. Completely rust-proofed.  
No ratches, gear, to wear  
or collect dirt.



No. 548 J Ratchet  
Bumper Jack  
Fast ratchet action, slides to  
proper height. Convenient re-  
lease trigger.

The new Auscos have the look, the action,  
the quality and the price that will please  
you, and a big waiting market—as you'll find  
out the minute you display them. Wartime ex-  
perience on every front—following Ausco's previous  
20 years of original equipment and replacement jack  
experience—make the coming Auscos *LEADERS* in a  
line of leaders—a challenge to the field, and an opportunity  
for you. AUTO SPECIALTIES MANUFACTURING CO.,

St. Joseph, Michigan . . . Windsor, Ontario, Canada.

Fully Covered by Patents



# Watch AUSCO

for the LATEST in Mechanical and Hydraulic Jacks

AUSCO Trademark Registered U. S. Patent Office

1403

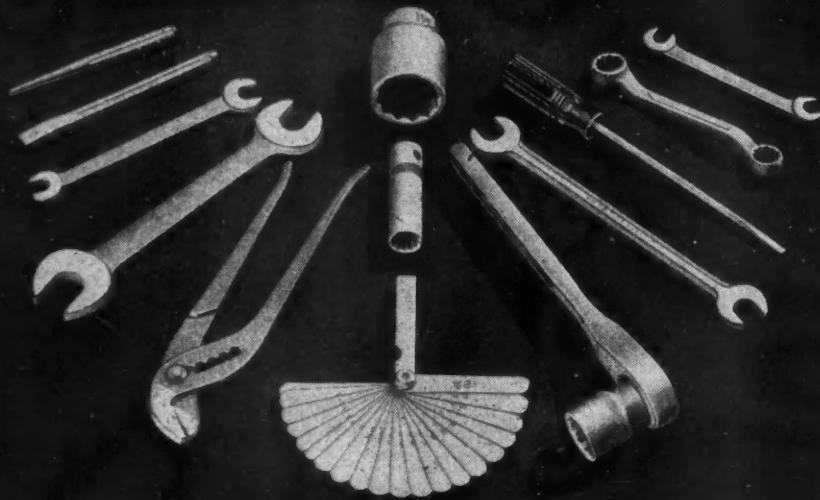
# WHERE IS IT?

A SEVEN-ACRE LAKE IS INCLUDED IN THE PLANS OF THE PROPOSED ...

GENERAL MOTORS TECHNICAL CENTER  HENRY FORD RECREATIONAL AREA  
 AUTOMOTIVE GOLDEN JUBILEE FAIR  CHRYSLER TESTING GROUNDS

Answer on Page 153

No need for "alibis"  
 when you use  
**HERBRAND TOOLS**



Don't get yourself behind the "8-Ball". Use HERBRAND Tools... the modern tools that add to a good mechanic's skill, and help to save time and effort.

Herbrand Quality Tools are designed and manufactured by expert craftsmen. They provide an absolutely accurate fit on parts for which they are

made... they offer a maximum of flexibility and balance, making it easier to work in cramped spaces . . . and they possess a reserve strength that comes in handy for the super-tough jobs.

Ask your Herbrand jobber—or write us—for Catalog No. 53 and latest prices,

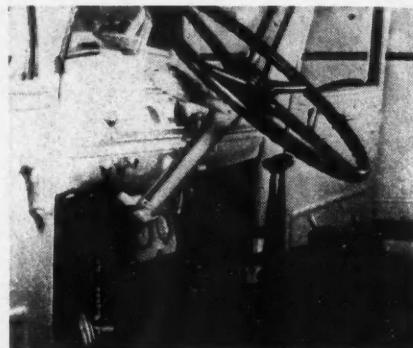
**THE HERBRAND CORPORATION • Fremont, Ohio**

*Drop-Forged Tools Since 1881*

## TWIN-ENGINE TRUCK HAS TANDEM FRONT

(CONTINUED FROM PAGE 63)

This maneuver is accomplished simply by starting the idle engine and pressing down on the synchronizer pedal. Moreover, this is done without touching the clutch and with no loss of momentum. The driver simply moves the gear shift lever to correspond with the engaged gear of the driving engine.



*Dual engine controls are necessary. Note the two transmission shifts and dual engine synchronizers on floor*

At the instant the idle engine comes up to speed and is engaged in gear an automatic torque equalizer—a device operating from the manifold pressure of both engines—comes into play to synchronize the carburetor throttles of both engines so as to balance their output properly. The one control for the synchronizer and torque equalizer is located on the floor at the left side, to be operated with the toe.

Each engine mounts its own standard clutch and transmission. Both clutches are operated from the same pedal, but the transmissions are shifted independently through separate gear shift levers.

A counter shaft on the frame at the right side, is powered by both engines through the use of a very simple over-riding clutch between the counter shaft and each motor. Thus either motor can pick up the job of operating the counter shaft, which shaft, powers the single fan and single compressor. The throttle also is operated from one pedal.

A single radiator is used to cool both engines through an interconnected cooling system, thus maintain-

(TURN TO PAGE 153, PLEASE)

## TWIN-ENGINE TRUCK HAS TANDEM FRONT

(CONTINUED FROM PAGE 150)

ing operating temperature in the idle motor.

### Air-over-Hydraulic Brakes

THE brake system is specially designed and does not use standard Chevrolet parts. The main brake system consists of 10 wheel brakes of Midland air-over-hydraulic type. The brake system has three independent cylinders—one for the four front wheel brakes and one on each side of the three rear axles. The two propeller shaft drives are fitted with American Chain Tru-Stop brakes.

It is of interest to find that the propeller shaft lines are built up of standard Chevrolet shafts, using as many multiples of the standard shaft as are necessary. For example, the system to the front rear axle consists of three separate lengths while that to the rearmost axle has five. Each of the sections is supported in standard mid-ship bearing supports.

### Compensating Spring Suspension

ANOTHER basic feature in conjunction with the use of a plurality of laterally shifting axles is the spring suspension. The springs of adjacent axles are provided with a compensating means which permits of great flexibility and assures proper contact of wheels with the ground under all road conditions. Compensation consists of a chain connection rolling over sprockets, as illustrated in the plans at Fig. 1 and at Fig. 3.

### ● WHERE IS IT?

### ANSWER

(To Question on P. 150)

General Motors Technical Center, which will occupy a 350-acre tract near Detroit and which will be the headquarters of General Motors Research. The buildings of the Center will face this lake. In addition to being pleasant to look at, the lake will serve to water-cool the buildings.

It allows any set of dual wheels to rise or drop with the contour of the road, permitting the frame and bed and load to remain level.

The frame is of special design and construction for the purpose. It is made up of heavy sections forming a box member which is arc-welded for strength and rigidity.

### Lubrication Simplified

LUBRICATION has been facilitated by the use of two main headers—one under the hood, the other

mounted on the frame side member amid-ship. This centralization of lubrication points assures quick and adequate supply. The propeller shaft joints are the only points not connected to the headers.

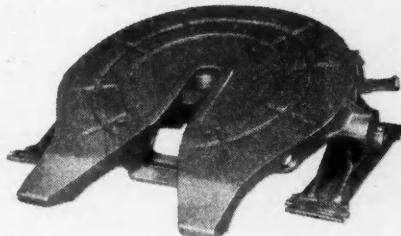
### Cab Is Comfortable

IN THE present design the cab is reworked or adapted from a standard Chevrolet cab. However, it includes the addition of insulation against noise and heat, thus making

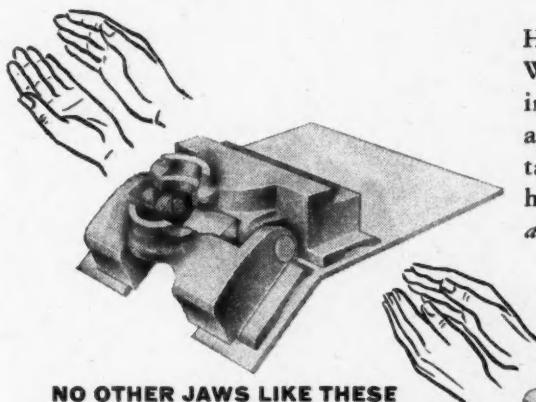
(TURN TO NEXT PAGE PLEASE)

## Here's Why King-Pins Last Longer in These Better Jaws

No 5th wheel can do a good job unless it's easy on king-pins, too—and no other 5th wheel is as easy on king-pins as the ASF Safety. Here's why!



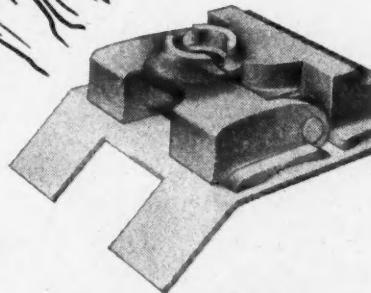
Here's how Safety 5th Wheels couple. Backing in the tractor slides jaw assembly onto horizontal portion of coupler housing—closes jaws around the king-pin.



### NO OTHER JAWS LIKE THESE

ASF Safety jaws give you the largest king-pin bearing area—*by far*—of any 5th wheel. That means *long* jaw life, of course, but equally important is the fact that jaws grip the king-pin at the *top* where pin diameter is greatest. King-pin *spring* and *bend* are reduced practically to *zero*. Jaws and king-pins stand up under the *toughest* kind of punishment.

Get the facts on this better 5th wheel. Learn how king-pin play has been *conquered*; what positive locking *really* means. Write American Steel Foundries, Automotive Division, 400 N. Michigan Ave., Chicago 11.



### POSITIVE LOCKING

It's mechanically impossible for this wheel to uncouple accidentally—and a quick glance tells you when it's locked. Hinge pins take no pull.

**A·S·F Safety 5th WHEEL**

## TWIN-ENGINE TRUCK HAS TANDEM FRONT

(CONTINUED FROM PAGE 153)

the cab more comfortable for the crew. An unusual feature of the cab is its provision for sleeper accommodation.

Contrary to the old practice of locating the sleeper crosswise of the vehicle and directly behind the seats, the sleeper in this new truck is located inside a standard size cab, making it unnecessary to shorten the pay-

load space back of the cab. The seat at the right side of this truck is so made that it is quickly and easily collapsed, forming a comfortable bed for a man up to 6 ft. 3 in. in height. An insulated compartment, projecting forward from the dash and equipped with a modern rubber mattress, provides the necessary added length to permit a full-length sleeping position, lengthwise of the vehicle.

END

(Please resume your reading on P. 64)

## TRUCK REGISTRATIONS INCREASE 120,000

(CONTINUED FROM PAGE 72)

brought many trucks that had been in storage back into service. These two factors more than accounted for the trucks which were removed from service either due to accidents or just plain fatigue.

The third and principal factor was the material and workmanship that went into the original equipment. All commercial vehicles have ably demonstrated that there were more miles in their carcasses than ever before dreamed of. However, entire credit cannot be given the truck manufacturers as the maintenance men of the industry have played a most important role in keeping the trucks on the highways despite the most serious handicaps of lack of labor, materials and parts. To these maintenance men, whether they be in a fleet shop, dealer or independent service establishment, the trucking industry owes a debt of gratitude.

END

(Please resume your reading on P. 75)

## FAR-REACHING VISIBILITY IN DENSEST FOG!

### "FOG KING" SEALED BEAM LIGHTS

Big DEMAND Everywhere

Equipped with Westinghouse amber units. With "FOG KING" superiorities, they insure penetration of fog and darkness far greater than possible with ordinary headlights, or auxiliaries.

#### "FOG KING"

Reflector Type Lights also available.

Never before has there been such a call for the famous "FOG KING."

Important new selling features: Chrome, or baked enamel finish. Rust proof. Reinforced sturdy saddle mounting, protection against bumps, shocks, vibration. New heavy lens attaching screw holds lens securely, yet easily released. Theft-proof skirting covers bolt head.

#### "ROAD KING"

Auxiliary Driving Lights are also furnished with Westinghouse Sealed Beam units—or in Reflector Type.

Send for Bulletins with full details.

1245  
Mound Ave.

The TELEOPTIC Company  
Also Manufacturers of TELEOPTIC DIRECTIONAL SIGNALS

Racine,  
Wisconsin



A NEW FEATURE OF DODGE TRUCKS IS A MANUALLY OPERATED CONTROL VALVE THAT REGULATES THE AIR IN . . .

- THE TIRES
- THE SEAT CUSHION
- THE CARBURETOR
- THE WINDSHIELD WIPER

Answer on Page 158

## GREASEPERT

(CONTINUED FROM PAGE 43)

"That greasemen when forced to dispose of drained oil, their pans being full, always empty them outside the door of the shop through which the office help must pass;

"That greasemen always give an extra heavy greasing to all front springs, king pins, tie rods, and steering linkage, the day before the Foreman discovers it is necessary to replace the king pins of said tractor;

"That greasemen always drain the oil from motors which are being tuned, waits until the mechanic starts the motor and is on the fender before shouting 'Hey, there's no oil in that motor' and then watches them all race into the cab at once to turn off the ignition;



"That when a greaseman has to grease a tractor from another terminal he always turns all the fittings in the wrong direction, and uses a heavy



NEW WHITE TRUCKS HAVE AN "ECONOMY RANGE FINDER" ON THE DASHBOARD. THIS ENABLES THE DRIVER TO DETERMINE . . .

- THE PROPER OCTANE GAS TO USE
- THE GROSS VEHICLE WEIGHT
- THE TEMPERATURE INSIDE THE PISTONS
- THE ENGINE SPEED

Answer on Page 160

duty socket when tightening the oil pan, transmission, and rear end plugs, so that their home terminal has to loosen them with a compressed



air wrench or use a torch on them;

"That a greaseman needing help to fill a transmission or rear end al-

ways gets down first on a creeper before asking for help so that his helper will have to do the pumping;

"And, finally, that greasemen always grease fenders exactly where Drivers must lean against to check their oil and water."

O'LEUM: "It's a pack of lies."

REPORTER: "Hm. Hmm. Well, to go on: Greasemen have different names in different places—even at different times I've heard mechanics

(TURN TO NEXT PAGE, PLEASE)

## Little Known facts of a well-known product

THE DRIVE SPRING  
DESIGNED,  
PRETESTED  
AND BUILT  
FOR LONGER LIFE



Another example of the creative engineering that marks the efficient operation and outstanding construction of the Bendix\* Drive is its Drive Spring.

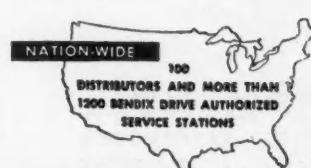
Made from a special spring steel . . . thoroughly heat-treated before winding . . . pretested against distortion and breakage—these are a few of the outstanding features of the Drive Spring.

During the cranking operation, the

Drive Spring is completely protected by being fully compressed. Thus is assured longer life and better drive service.

For quick identification and your protection, the Spring and other Starter Drive parts are packed in the well-known blue and white Bendix boxes.

Remember—the name Bendix is your assurance of durable construction and customer satisfaction.



# Bendix Drive



ECLIPSE MACHINE DIVISION, ELMIRA, NEW YORK

## GREASEPERT

(CONTINUED FROM PAGE 157)

call them different names. Have you any ideas on this, Mr. O'Leum?"

O'LEUM: "Yes, indeedy. I've given it a lot of thought. Taking only the names fit to be printed, of course, we have

Greasologist	Grease Ball
Grease Gunner	Grease Monkey
Greasquirt	Greaser
Greaspert	Greaseman

Lubritician  
Lubritist

Lubricator  
Lubriman

"This last must come from that stone age ancestor of mine, Turalur O'Leum, and there are still times around a shop when it would be handy to have a tail. But of all the names I would favor 'Greaspert' both from a phonetic standpoint—because it sounds like a blob of grease hitting the windshield in front of the Driver's seat—and from a philological approach, if I make myself clear. Its

connotation has the flavor of efficiency, proficiency, expertness or, to put it simply, can do."

REPORTER: "Have you any suggestions for improving the greasing of tractors?"

O'LEUM: "Yes, indeedy. I've given it a lot of thought. Why not wire up all the grease fittings under a tractor with small lights to be turned on from a central switch? You know it gets dark and lonesome sleep—I mean lying—under a tractor, and it's no fun shooting in the dark all the time. It gets a man. Makes him trigger shy. Does something to him mentally."

REPORTER: "What do you think of the idea of one central lubricating point in a tractor, where a single shot would lubricate every grease fitting in the tractor at once?"

O'LEUM: "Fine. I'd get my 40 hours, of course. And it would give me time to think things out. After all, drither are we wifiting, I mean, whither are we drifting? Maybe I could write my memoirs of Drivers, Mechanics and Foremen I Have Known. To be published posthumously, of course. Revelations, you know!"

REPORTER: "Well, thanks a million, Mr. O'Leum. I'll be running along. . . . Oops! I guess I sat on something. . . . Feels like an old grease rag. . . . Yes, it does leave a funny spot on the seat of my white trousers. . . . Ha, Ha. . . . But thanks for rubbing it with gasoline . . . ."

O'LEUM: "Well, don't strike any matches on your trousers . . . . That spot sure looks suspicious right where it is. . . . Ha, Ha. . . . But oil's well that ends well!"

END

(Please resume your reading on P. 44)

## ● WHAT'S NEW?

### ANSWER

(To Question on P. 154)

The seat cushion. The driver is able to control the amount of air in the cushion according to his weight or the operating conditions.

**Meet the MARQUETTE FAMILY**

**MARQUETTE A.C. ARC WELDERS**

All jobs from light body and fender welding to heavy truck and trailer frames are taken in stride. Alternating Current gives you "Balanced Polarity", Maximum Penetration and Metal Control. Versatile Marquette Welders are ideal for all types of repair and maintenance welding jobs. 12 models.

Send for 24-Page Illustrated Welder Booklet

**ALL TYPES OF ELECTRODES And GAS WELDING RODS**

"The Right Rod for Every Welding Job" is the key to better welding. The Marquette Laboratories' Know How has produced truly outstanding electrodes . . . leaders in the field. Each rod is a masterpiece of modern metallurgical engineering, designed to help you do better work. Marquette also has a complete line of high quality Gas Welding Rods for every purpose.

**MARQUETTE GAS WELDING EQUIPMENT**

A complete line of modern, high quality Gas Welding Equipment and Supplies. Advanced features are found in Marquette Welding and Cutting Outfits.

**ACETYLENE GENERATORS**

Save 70% of the cost of cylinder acetylene gas. Produces purer gas for a hotter, more uniform flame. 4 models, 12 to 50 pound capacity.

Send for 24-Page Gas Welding Book

**And ALL WELDING ACCESSORIES**

Everything you need for Better Welding. Helmets, Welding and Power Cables, Electrode Holders, Arc Torch, Lenses, Spatter Shield and Fluxes. Your Marquette Distributor is Your Headquarters for the BEST in Gas and Electric Welding Equipment and Supplies.

MARQUETTE WELDING EQUIPMENT SOLD EXCLUSIVELY THRU THE NATION'S LEADING DISTRIBUTORS

**MARQUETTE**  
REGISTERED U.S. PAT. OFFICE

**Welding**

**EQUIPMENT**

A.C. ARC WELDERS • ELECTRODES  
GAS WELDING AND CUTTING EQUIPMENT  
ACETYLENE GENERATORS • ACCESSORIES

MARQUETTE MFG. CO. INC.  
MINNEAPOLIS 14, MINN.

# A H

## NOW! CHROME PISTON RINGS

*cut fleet operating costs and down-time!*

The war diverted American Hammered Porous-Chrome\* piston rings from America's trucks and buses to Allied warplanes; but, today, this history-making American Hammered achievement is available to fleet operators!

Road tests covering more than seven million miles—in all types of engines; in door-to-door service, and over-the-road hauling—established these facts about American Hammered Porous-Chrome piston rings:

1. Wear on all rings in the set—both chrome and cast iron—is reduced to one-fifth of what is considered normal!
2. The rings seat so quickly that wear on rings and cylinders during the break-in period is entirely eliminated!
3. Cylinder wear is reduced as much as one-third from what is considered normal!
4. The piston rings often outlast the other engine parts!
5. Oil consumption is kept lower for a longer period!
6. Scuffing and scoring of piston rings is eliminated!

American Hammered Porous-Chrome piston rings will give you this performance: increase the time between engine overhauls; cut operating and maintenance costs; eliminate much of the down-time that cuts into your profits!

\*Van der Horst process

YOUR AMERICAN HAMMERED JOBBER  
IS PREPARED TO SERVE YOU

Koppers Company, Inc., American Hammered Piston Ring Division, Baltimore, Maryland

# American Hammered Piston Rings

A KOPPERS PRODUCT

## QUIZ ANSWERS

CCJ Quiz on Page 64

1. b. Studebaker, through its ads, is trying to bring about a smoother flow of traffic on our city streets.

2. d. Reo, whose ads have been gracing our front cover for more than 14 years.

3. a-2; b-3; c-1.

4. a-1; b-2; c-4; d-5; e-3.

5. d. The average issue of the COMMERCIAL CAR JOURNAL will have well over 300 advertisers.

6. a. Johns - Manville . . . and they'll send you a whole book of brake facts if you write for their "Fleet Reliners' Manual."

7. a. Autocar; b—Mack; c—Federal; d—Walter; e—White.

8. a-2; b-5; c-1; d-3; e-4.

9. a-3; b-2; c-5; d-4; e-1.

10. c. The yawning boy in his nightie, holding a candle, has long been the trade-mark of Fisk Tire Co.

END

(Please resume your reading on P. 65)

## CCJ NEWSCAST

(CONTINUED FROM PAGE 98)

for more than 20 years. Before long Diamond T was building motor trucks exclusively.

E. J. Bush, the new president, came to Diamond T in 1919 as assistant sales manager, direct from service as a field artillery officer in World War I. The following year he was made general sales manager. He has been vice-president since 1927 and a member of the board of directors. A major feature of his quarter-century of service was his development of Diamond T's distribution and establishment of the vast national and international dealer organization of the present.

Mr. Bush, who was born in Topeka, Kan., in 1891, received his education at the Washburn College and Northwestern University.

C. A. Peirce, who has also been a vice-president since 1927 and a director of the company, now becomes executive vice-president. He continues in direct charge of engineering and production.

Sidney A. Cook, vice-president and secretary, who has been an officer and director since 1918, has resigned the secretaryship and that position will be filled by J. F. Danielson, who has for years been auditor of the company.

T. C. Huxley, Jr., previously vice-president in charge of sales for the eastern territory, has been named general sales manager succeeding Mr. Bush.



(TURN TO PAGE 162, PLEASE)

## ● WHAT IS IT?

### ANSWER

(To Question on P. 157)

The engine speed. The driver can read the engine speed directly from the speedometer dial and use it as a guide to selecting the transmission gear that will operate best under the existing conditions.

### The Story of the Day's Work



**The Servis Recorder**  
Tells Every Move Your Truck Makes



Photograph Courtesy of Mack Trucks, Inc.

## GETTING OUT THE RAW MATERIALS

Stock piles are low. Many more tons of raw materials, above normal haulage, will have to be carried by trucks in 1946-47 to bring the nation's stock piles back to pre-war levels.

The post-war era of construction means a strenuous program for the trucks that must do the hauling, and calls for a maximum of built-in stamina and dependability.

To meet these conditions manufacturers of trucks, like the one illustrated, have been building their trucks on PARISH Pressed Steel Heat-treated Frames.

PARISH Frames have a high ability rating because they are made of special steels and alloys which give them a fatigue value 200% greater than steels commonly used. They are not affected by continuous side, vertical or end stresses, but "spring back" immediately to their original position holding all parts attached to them in true relation to each other.

This is the time you need top performance. Whether your post-war trucking job is a tough one or a light one, be sure to specify "PARISH" when buying new trucks, or replacing frames in old ones, because PARISH is the frame with the "springback."



### PRESSED STEEL HEAT-TREATED FRAMES FOR TRUCKS AND TRAILERS

**PARISH PRESSED STEEL CO. Subsidiary of SPICER MFG. CORP.  
READING, PA.**

Western Representative: F. Somers Peterson, 57 California St., San Francisco, Cal.

## CCJ NEWSCAST

(CONTINUED FROM PAGE 160)

### National Council Announces Supervisor Training Schedule

The National Committee for Motor Vehicle Fleet Supervisor Training has just announced the tentative schedule of Motor Vehicle Fleet Supervisor Training Courses to be conducted during 1946 at the various colleges and universities throughout the country:

Jan. 21-25, North Carolina State College, Raleigh, N. C.

Feb. 11-15, Tulane University, New Orleans, La.

Feb. 18-22, Texas A. & M. College, College Station, Tex.

Mar. 4-8, University of Southern California, Los Angeles, Cal.

Mar. 11-15, University of California, Berkeley, Cal.

Mar. 25-29, University of Arizona, Tucson, Ariz.

Apr. 1-5, University of Oklahoma, Norman, Okla.

Apr. 15-19, Boston University, Boston, Mass.

Apr. 29-May 3, Iowa State College, Ames, Iowa.

May 6-10, University of Wisconsin, Madison, Wis.

May 13-17, University of Michigan, Ann Arbor, Mich.

May 20-24, Northwestern University, Evanston, Ill.

June 3-7, Montana State College, Bozeman, Mont.

June 10-14, University of Utah, Salt Lake City, Utah.

June 17-21, Casper Junior College, Casper, Wyo.

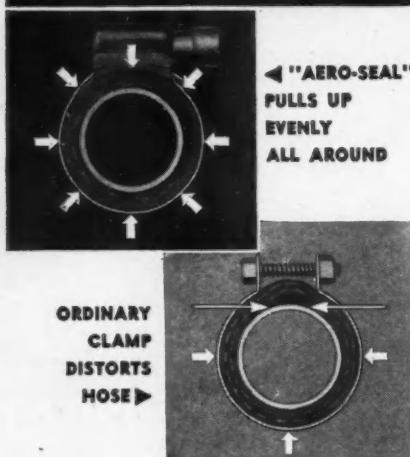
June 24-28, Denver University, Denver, Colo.

Aug. 12-16, Oregon State College, Portland, Ore.

(TURN TO PAGE 164, PLEASE)



## "Aero-Seal" WORM DRIVE HOSE CLAMPS



### True TANGENTIAL TAKE-UP means NO DISTORTION of Hose...

The belt-like tightening action of the AERO-SEAL Clamp gives uniform pressure all around. An ordinary clamp will squeeze and distort the hose at one point. AERO-SEALS produce a leakproof joint with only moderate tightening torque, whereas extreme torque is necessary with ordinary clamps to overcome the leakage opening resulting from distortion. Extreme tightening greatly shortens hose life. AERO-SEALS, originally designed for aircraft service, have proved their ability to do a better job of clamping. Try one for yourself, and see!

#### Send for FREE SAMPLE!

AIRCRAFT STANDARD PARTS CO.  
1773 19th AVE., ROCKFORD, ILL.

Please send me one sample "AERO-SEAL"

Hose Clamp. Size preferred.....

NAME.....

COMPANY.....

ADDRESS.....

CITY..... STATE.....



W. E. Fish, left, newly appointed assistant general sales manager in charge of the eastern half of the United States for Chevrolet Motor Division of General Motors. Right, G. I. Smith, new assistant general sales manager for the western part of the United States for Chevrolet



Commercially, this headline reads, "Worst Storm of Season Causes Losses in Time and Revenue."

Baker's wide selection of truck mounted plows is the solution to your snow removing problems. Built in a variety of styles and sizes, Baker plows are engineered for easy operation, maximum removal, and long-life. Whether you require the "V" type, the Landside blade, or the Reversible blade, you can be assured of the same high standard of dependability in Baker plows.

In 1946 as in 1908 — see your way clear with Baker.

**THE BAKER MFG. CO.**  
571 Stanford Ave.  
Springfield, Ill.

**BAKER**  
TRUCK AND  
TRACTOR  
SNOW PLOWS

# THE 1946 WILLYS-OVERLAND JEEP

## *Spicer-Equipped!*



The wartime Willys-Overland Jeep was one of the most serviceable vehicles in our armed forces. It was equipped with Spicer transfer cases, universal joints and axles. Now the peacetime Jeep has been made more versatile than ever. With few changes in the Spicer axle and transfer box, the 1946 Jeep now can do up to 60 miles per hour on the highway, and with equal ease performs a sustained work job at heavy drawbar pull and low vehicle speed. Spicer engineering and manufacturing skill are ready now to serve the needs for power transmission efficiency in your new 1946 models.



This is the Spicer transfer case, universal joint and axle assembly used in the new 1946 Willys-Overland Jeep.

Spicer Manufacturing Corporation  
Toledo 1, Ohio

Transmissions, Torque Converters, Clutches, Passenger Car Axles, Universal Joints, Parish Frames, Stampings



"Yes. Heat where you want it —"



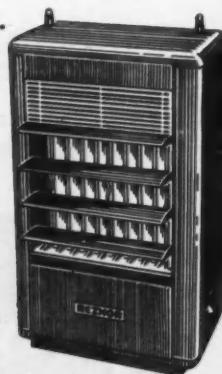
# REZNOR

*Gas unit heaters*

1. Suspended—saves floor space.
2. Gas fired—clean, automatic heat.
3. Attractive—seal brown.
4. Will heat any size area.
5. For commercial and industrial buildings.
6. Easily installed.



Propeller fan and blower types. Nine sizes of each.



**REZNOR**  
MANUFACTURING CO.  
Since 1888  
MERCER, . . . PENNA.

NO BOILERS • NO STEAM LINES  
NO FUEL STORAGE • NO FIRE TENDING

## CCJ NEWSCAST

(CONTINUED FROM PAGE 162)

Aug. 19-23, University of Washington, Seattle, Wash.

Sept. 9-13, Pennsylvania State College, State College, Pa.

Sept. 23-27, Georgia School of Technology, Atlanta, Ga.

Sept. 23-27, University of Minnesota, Minneapolis, Minn.

Sept. 30-Oct. 4, University of Nebraska, Lincoln, Neb.

Oct. 14-18, Ohio State University, Columbus, Ohio.

Oct. 14-18, Purdue University, Lafayette, Ind.

Oct. 21-25, New York University, New York City, N. Y.

Oct. 28-Nov. 1, Vanderbilt University, Nashville, Tenn.

Nov. 4-8, University of Houston, Houston, Tex.

Nov. 18-22, University of Florida, Gainesville, Fla.

This preliminary schedule may be subject to change and courses at several other universities may later be included.

## 102,000 Army Truck Tires Declared Surplus

Approximately 102,000 truck tires which have been declared surplus by the Army will be sold exclusively to veterans in a nationwide sale to get under way immediately, the Office of Surplus Property, Consumer Goods Division of the Reconstruction Finance Corp. has announced.



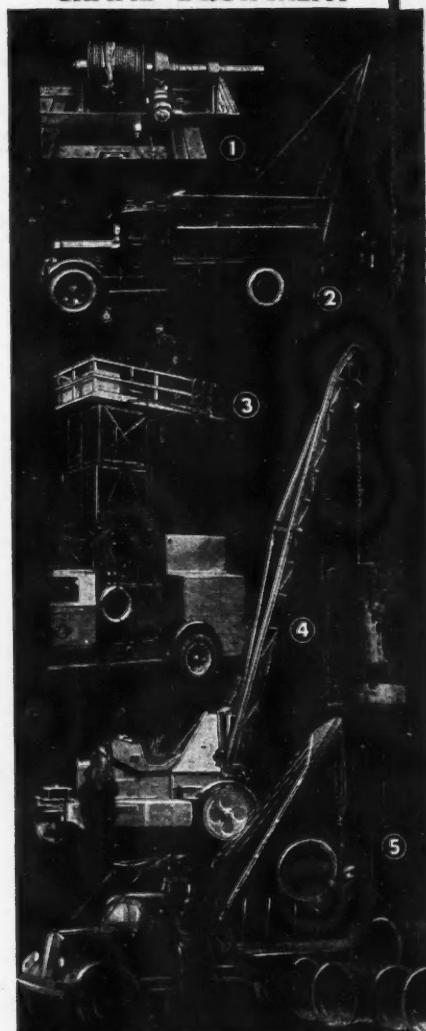
Frank O'Callaghan of Louisville, Ky., has been appointed president of the Shuler Axle Co., Louisville. Mr. O'Callaghan, a veteran executive in management and sales work, fills the vacancy caused last May by the death of his predecessor, John P. Potter.

## AUTOMOTIVE EQUIPMENT

by "SILENT HOIST"

Pioneer Mfrs. of

TRUCK WINCH AND CRANE EQUIPMENT



1. WINCHES: Capstans; Single and Double Drum, Jaw Clutch, Keyed and Friction Clutch Winches. 2,000 to 50,000 lb. Capacities.

2. SILENT HOIST Tripod Pole Setting Derricks are used by municipalities and public utilities throughout the country. Furnished with "Silent Hoist" Jaw Clutch or Keyed Drum Winch, or without winch for truck already provided with one.

3. Power Operated Telescopic-Section Truck Tower. Electrically welded steel, 2 or 3 sections, plain nest type or revolving platform, as desired.

4. KRANE KAR Swing Boom Mobile Crane. For materials-handling . . . lifting, transporting, positioning. Gasoline or Diesel, one to 10 ton capacities, 12 to 32 ft. booms (or telescopic booms). Self-stabilizing without jacks or outriggers; unobstructed vision, fast, flexible, safe, easy to operate. Solid or pneumatic tires.

5. Truck Crane handling pipe. Powered by truck motor; high capacity; takes up only a small space. For handling transformers, cable reels, lamp posts, trees, poles, manhole castings, etc. One to 10 ton capacities.

USERS: Gen'l Motors; Chrysler; AT&T; Cons. Edison Co. of N.Y.; Western Union; Penn. RR; Texas Power & Light; etc.

### WRITE FOR CATALOGS:

No. 58-KRANE KAR No. 60-Truck Equipment





Balance is one of the marks of a  
good piston casting. ALUMINUM  
COMPANY OF AMERICA, 1916  
Gulf Bldg., Pittsburgh 19, Pa.

**LO-EX**  
REGISTERED TRADEMARK  
**PISTONS OF**  
**ALCOA ALUMINUM**

FIRST IN

**ALCOA**

# OTC

MAINTENANCE  
TOOLS

Speed up

## REPAIR JOBS

Use the OTC PULLING SYSTEM to remove and replace bearings, races, pinions, gears, sprockets, sleeves, collars, snap rings, hubs, wheels, shafts and other close-fitting parts and assemblies—EASILY, QUICKLY SAFELY! The only COMPLETE Puller Line—solves many tough pulling problems not handled by any other tools. APPROVED by Hyatt, M-R-C, New Departure, SKF and Timken. OTC means DEPENDABILITY.

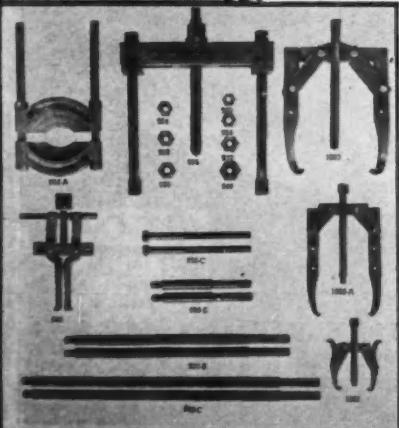
OTC No. PE-12 SET (shown below) is a service-tested selection of OTC PULLERS, Attachments, Threaded Adaptors and Extension Legs to handle widest possible range of work on trucks, busses, tractors, and power equipment. Optional Service Board is 3' x 4', sturdy, convenient, attractive.

Ask Your Jobber  
or write for details

OWATONNA  
TOOL CO.

335 Cedar St.  
OWATONNA, MINN.

Removing differential bearings  
on KR-11 International Truck.



166 Use postage-paid card inserted in this issue at page 59, for free information on advertised products

## EDITORIALS

(CONTINUED FROM PAGE 39)

### Specifications Table Tip

IN response to the request of many readers, the CCJ Truck Specifications Table will be published every month commencing with this issue.

The publication of truck specifications was first begun by CCJ in the issue of January, 1919. The current issue begins the twenty-eighth year of their beneficial life. In the years that have elapsed, the Table has served every branch of the industry—engineering, manufacturing, selling and operating—as a quick and ready reference to the salient features of the various makes of trucks.

During the past 27 years the Truck Specifications Table has undergone many changes in keeping with the progress of the industry and the demands of fleet operators. No change is in prospect, but whenever there is proof that operators desire a change, COMMERCIAL CAR JOURNAL will hearken to the demand.

As in the past the listings in the Table are as complete as they can be made, dependent as COMMERCIAL CAR JOURNAL is upon the cooperation of manufacturers for the procurement of authentic data. Several makes of trucks are not listed, the companies involved preferring not to submit specifications for publication in line with company policy. That is a privilege we are bound to respect. Readers who continue to ask us for the specifications of *all* makes, may rest assured that we shall continue to try to get them.

But specifications to be completely reliable must be authentic and the only source is the manufacturer. Readers can help themselves by making known to the missing manufacturers the usefulness of the CCJ Truck Specifications Table and urging them to participate.

END

(Please resume your reading on P. 40)



Irving F. Wagner, manager of American Brake Shoe's Kellogg plant at Rochester, New York, has been made a vice president of the Kellogg Division

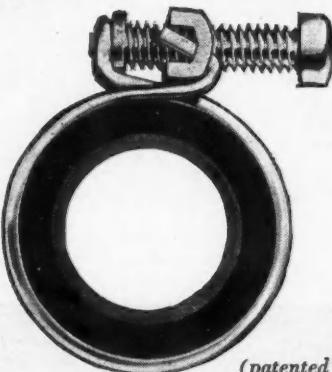
Ripley take  
note...



... believe it or not ...  
here's a wire hose clamp that  
tells Mr. Hose ... "You can't leak  
any more, any more." It  
encircles the hose with a steel  
vise grip at every point of its  
360° circumference, and  
NEVER lets go!



Manufacturers, Mechanics,  
Owners ... take notice. The  
Central "360" Wire Hose Clamp  
is sold with an unconditional  
guarantee that it will do its  
job — no "clinches" barred!



(patented)

P.S. No shock, jolt or vibration  
can lessen or loosen the powerful  
grip of the "360" clamp.  
Costs no more ... but worth  
much more.



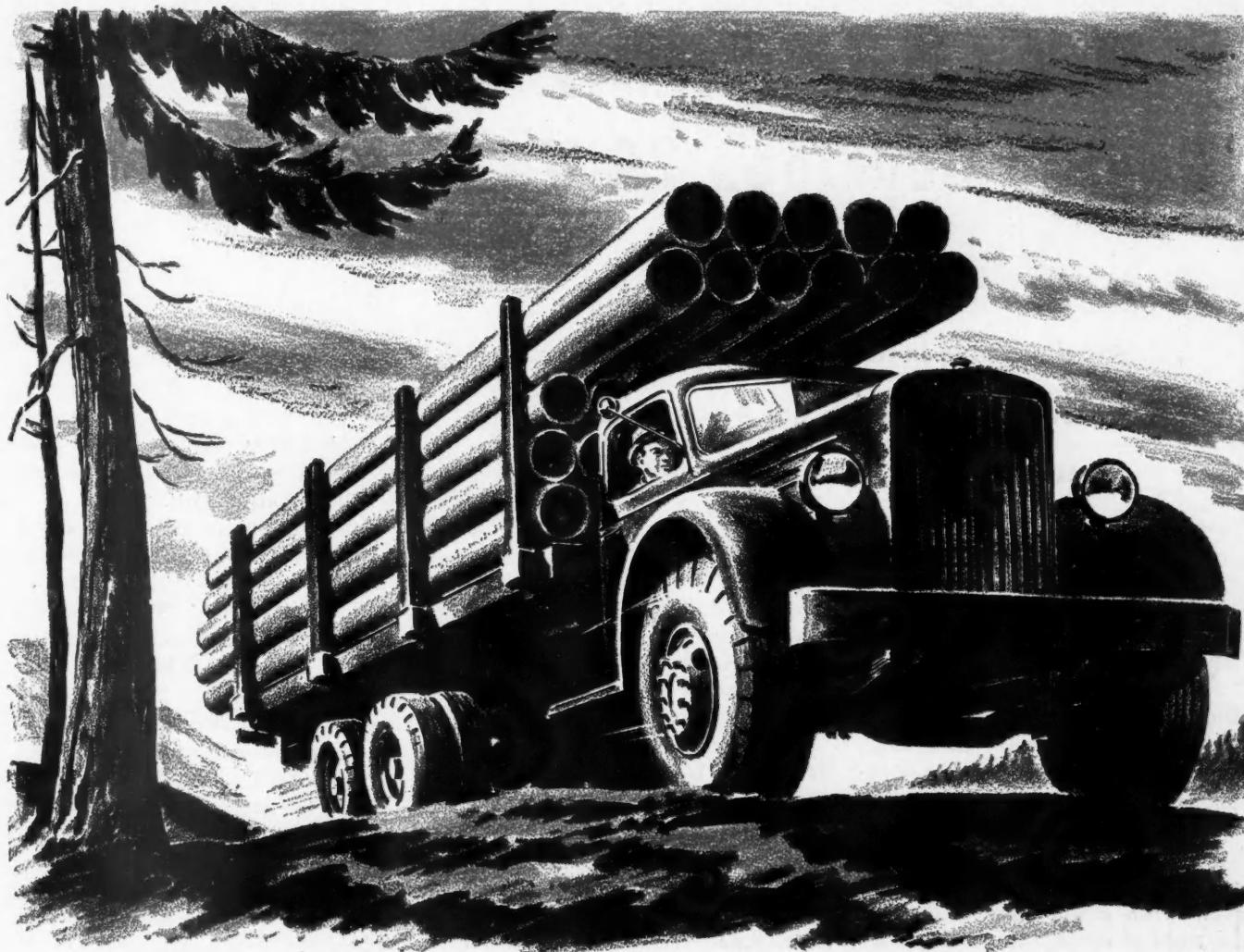
**CENTRAL "360"**  
**WIRE HOSE CLAMP**  
**CENTRAL EQUIPMENT CO.**  
**900 S. WABASH AVENUE, CHICAGO 6, ILL.**

COMMERCIAL CAR JOURNAL

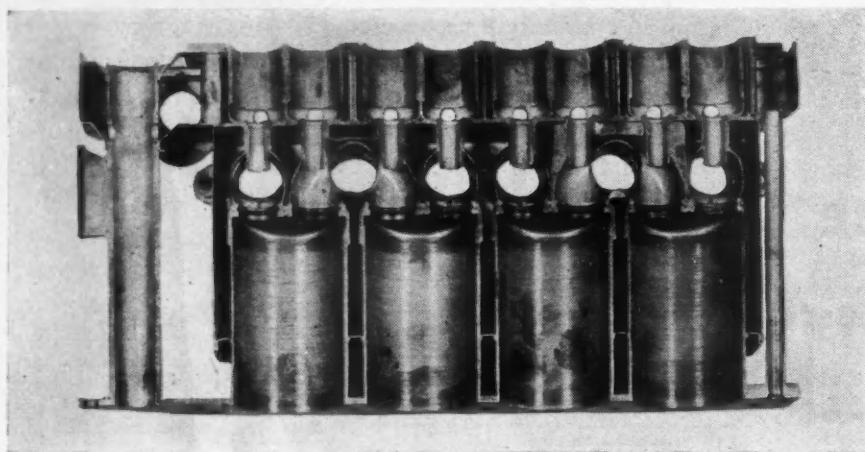
**EXTRA  
PERFORMANCE  
...for Heavy-Duty  
Demands**

Dependable performance is the reason for Holley's leadership in commercial carburetors and carburetor-governors. Throughout half a century Holley engineers have designed carburetor equipment to meet most efficiently the ever-increasing and more exacting demands of commercial transportation. On America's highways, motor truck and bus operators test daily the smoother engine performance, greater carburetor efficiency and increased operating economies afforded by Holley Carburetors and the famous Holley Centri-Vac carburetor-governors. Experienced commercial vehicle operators find Holley products unexcelled for heavy-duty demands. That's why so many of them look to Holley for leadership!

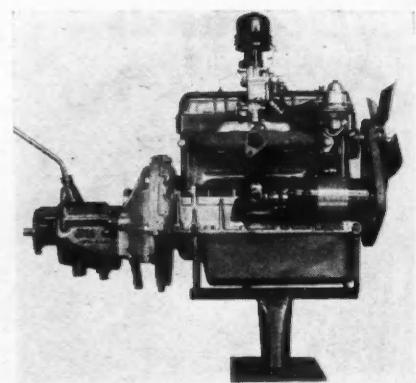
HOLLEY CARBURETOR COMPANY  
5930 VANCOUVER AVE., DETROIT 4, MICHIGAN



**HOLLEY**  
*AIRCRAFT, AUTOMOTIVE, MARINE*  
**CARBURETORS AND ACCESSORIES**



*Left. Cutaway view of new Crosley engine. Cylinders and cam follower guides are made of light-walled alloy steel tubing; cylinder heads, intake and exhaust ports, valve cases and water jackets are sheet steel stampings. About 120 stampings are used in the block. Parts are held in place by shrink fit, spot weld or crimping, then copper brazed in a specially constructed furnace. Below. The complete power plant*



## New 138-Lb. Crosley Engine Develops 26 Hp.

**4-cyl., valve-in-head engine, licensed under Taylor patents, has 44 cu. in. displacement, gives 50 m.p.g. at 30 m.p.h.**

**A**LTHOUGH the details of the 1946 Crosley car are not yet available, Crosley Motors, Inc., Cincinnati, Ohio, has released complete data on its new powerplant which embodies unusual features of design and manufacturing processes.

It is possible to say at this writing that the 1946 Crosley will be a two-door sedan model, seating four, mounted on a wheelbase of 80 in., and tread of 40 in., with a shipping weight of 1000 lb. Although the new car will be 28 in., longer and 2 in. wider than the 1940 model, its weight is just about the same. Major credit for weight economy goes to the newly developed engine. The previous model had a displacement of 35.2 cu. in., developed 12.5 hp., and weighed 188 lb. complete. By contrast, the new engine develops 26 hp.,

and weighs 138 lb., complete with all accessories including generator and starter. It weighs but 59 lb. without accessories.

Maximum speed of the 1946 model is given at 65 m.p.h. Fuel economy for this higher performance car is said to be even better than for the 1946 job. Test results of a 1200-lb. experimental car with 350-lb. payload showed a fuel economy of 50 m.p.g. at 30 m.p.h., and 35 m.p.g. at a speed of 55 m.p.h. At maximum torque the specific fuel consumption is 0.43 lb./bhp. hr.

### Licensed Under Taylor Patents

**I**T IS of interest to note that the development of this engine stems from the fact that Powel Crosley, Jr., learned of an all-steel, stamped, copper-hydrogen-brazed engine which

was being tested in 1943 at the Annapolis Experimental Engineering Station of the U. S. Navy. He found that the inventor of the engine was Lloyd M. Taylor of Taylor Engines, Inc., and made contact which later resulted in an exclusive license under the Taylor patents.

Specifications of the new all-steel stamped, copper-hydrogen-brazed engine are as follows: 4-cyl., valve-in-head, 2.5 in. bore x 2 1/4 in. stroke, 44 cu.-in., displacement, with maximum of 26 hp. at 5200 r.p.m. with compression ratio of 7.5 to 1. The engine is fabricated of steel stampings, and, consequently, has stamped steel cylinder heads and steel cylinder barrels, the latter being formed from SAE 3140 material. Subsequent heat treatment of the fabricated assembly develops suitable hardness values for the various elements subject to heat and wear.

Pistons are of heat-treated permanent mold aluminum with an aluminum oxide surface finish, cam-ground, and weigh 4.92 oz. each. Piston pins are of floating type with aluminum plugs at each end. There are three rings per piston—one oil ring and two compression rings. The drop forged con-rods are tiny—4.125

(TURN TO PAGE 232, PLEASE)



#### **TWO GREAT FORD ENGINES**

*The 100 H.P. V-8 • The 90 H.P. Six  
Three-Quarter-Floating Rear Axle*

**BODY DIMENSIONS:** Length 78½ inches • Width 49 inches • Height 20.22 inches • Loading Height 23.73 inches • Load Space 45 cu. feet

**New Ford Pickup Truck** • Today's Ford Pickups are better trucks for *your* business. They're better trucks for *any* business. Exclusive Ford features and advancements make them roadworthy—streetworthy—farmworthy. Look below. You'll find advantages only Ford can offer—reasons why, year after year, registrations show "More Ford Trucks on the Road!"

#### **MORE ECONOMICAL, MORE RELIABLE, MORE ENDURING THAN EVER!**

TWO great engines—the rugged 100 H.P. V-8 with a score of important engineering advancements, or the 90 H.P. Six, for jobs that call for economical stop-and-go driving. Truck-type frame. Side-mounted springs. Three-quarter-floating rear axle with straddle-mounted pinion and 4-pinion differential. Four double-action shock absorbers. Note the generous dimensions of the heavy-gage steel Ford Pickup body, shown above—45 cubic feet of load space—wide enough for easy flat-loading of such 4-foot units as plywood or plasterboard (no wheel housings). Floor is heavy-gage steel-surfaced, with formed skid-strips and hardwood under-flooring. Tailgate, strong and rattle-free, swings full-down for loading.

Priorities No Longer Needed.  See Your Ford Dealer!

# **FORD TRUCKS**

## NEW CROSLEY ENGINE DEVELOPS 26 HP.

(CONTINUED FROM PAGE 168)

in. center to center—and weighs 9.62 oz. each.

The crankshaft marks an interesting development for an in-line passenger car engine. It is a casting of high strength cast iron, fully counterweighted, having five main bearings with the rear main taking the thrust.

Intake and exhaust valves have the head of 2112 chrome-nickel steel. Carburetor is a Model DY-9B down-draft Tillotson, SAE  $\frac{7}{8}$  in. The front mounted fuel pump and the air cleaner are supplied by AC. Auto-Lite, electrical equipment is standard.

The clutch, made by Rockford Drilling Machine, is of single disc type with two molded-asbestos linings of 6-in. O.D., 4-in. I.D.,  $\frac{1}{8}$  in. thick. A Warner Gear Model ASI-T92 three-speed transmission with manual control is standard.

The valve system features a bevel gear drive instead of a chain. The vertical shaft is drilled to carry oil under pressure to the five camshaft

bearings. The oil pump and distributor are driven by helical spur gears from the crankshaft. The oil pump pan, generator and water pump are driven at  $\frac{3}{4}$  engine speed.

Outstanding feature of the engine is the construction of the cylinder block which is made up of light-walled alloy steel tubing for the cylinders and cam follower guides, and of sheet steel stampings for the cylinder heads, intake and exhaust ports, valve cases, and water jackets. These stampings number about 120 pieces for the block. The parts are held in place by shrink fits, spot weld or crimping operations and form a firm structure even before brazing. The assembly is then copper brazed in a specially constructed furnace.

The inside of the water jacket is covered with a clear, hard coat of plastic which, after baking, becomes so durable that it cannot be removed in a stripping tank of a strong caustic or acid solution. The material of the jacket is 20 gage, SAE 1010 sheet steel, and the sides are ribbed in such a manner that no damage occurs to the block if water is frozen solid.

The crankcase is only 3 in. high, weighs  $7\frac{3}{4}$  lb., and is a permanent mold aluminum alloy casting. The hold-down bolts for the cylinder block extend through the case to the main bearing caps.

The cooling system holds 5 qt. of water. The lubricating system holds 3 qt. of oil.

High economy is attributed to the high compression pressure. The lack of detonation is due to the cool combustion chamber where pre-ignition is prevented during the compression. The maximum wall thickness at any point separating the combustion chamber from the cooling water is .125 in. Because of the uniform substantially thin walls of the fabricated steel construction, including the portion between the valve seat inserts and because of the generous contact between these walls and the cooling medium, a much more even heat distribution is obtained. This prevents the accumulation of heat in certain areas, avoids hot spots, eliminates pre-ignition and permits compression ratios of 9 to 1 to be successfully achieved.

**THE New TINNERMAN**

**\* HOSE CLAMP**



**SPEED CLAMP ADVANTAGES**

1. One piece—no bolts, gears, thumbscrews.
2. Exclusive, self-locking, ratchet design.
3. Faster and easier to install or remove.
4. Uniform pressure provides leak-proof grip.
5. Low profile—no protruding mechanism.
6. May be used over and over again.

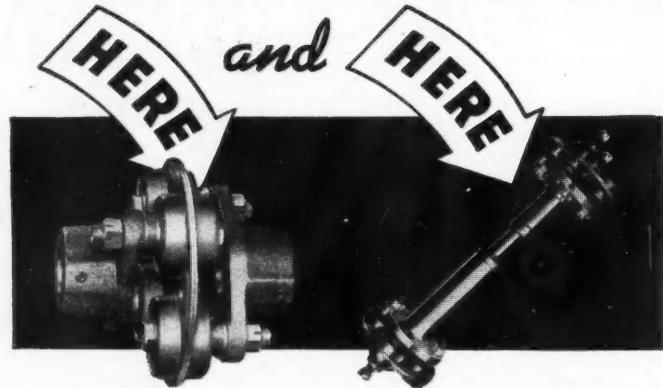
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**TINNERMAN PRODUCTS, INC.**  
2020 Fulton Road, Cleveland 13, Ohio

**Speed-Nuts**

FASTEST THING IN FASTENINGS... OVER 3000 SHAPES AND SIZES

## MISALIGNMENT COMPENSATION

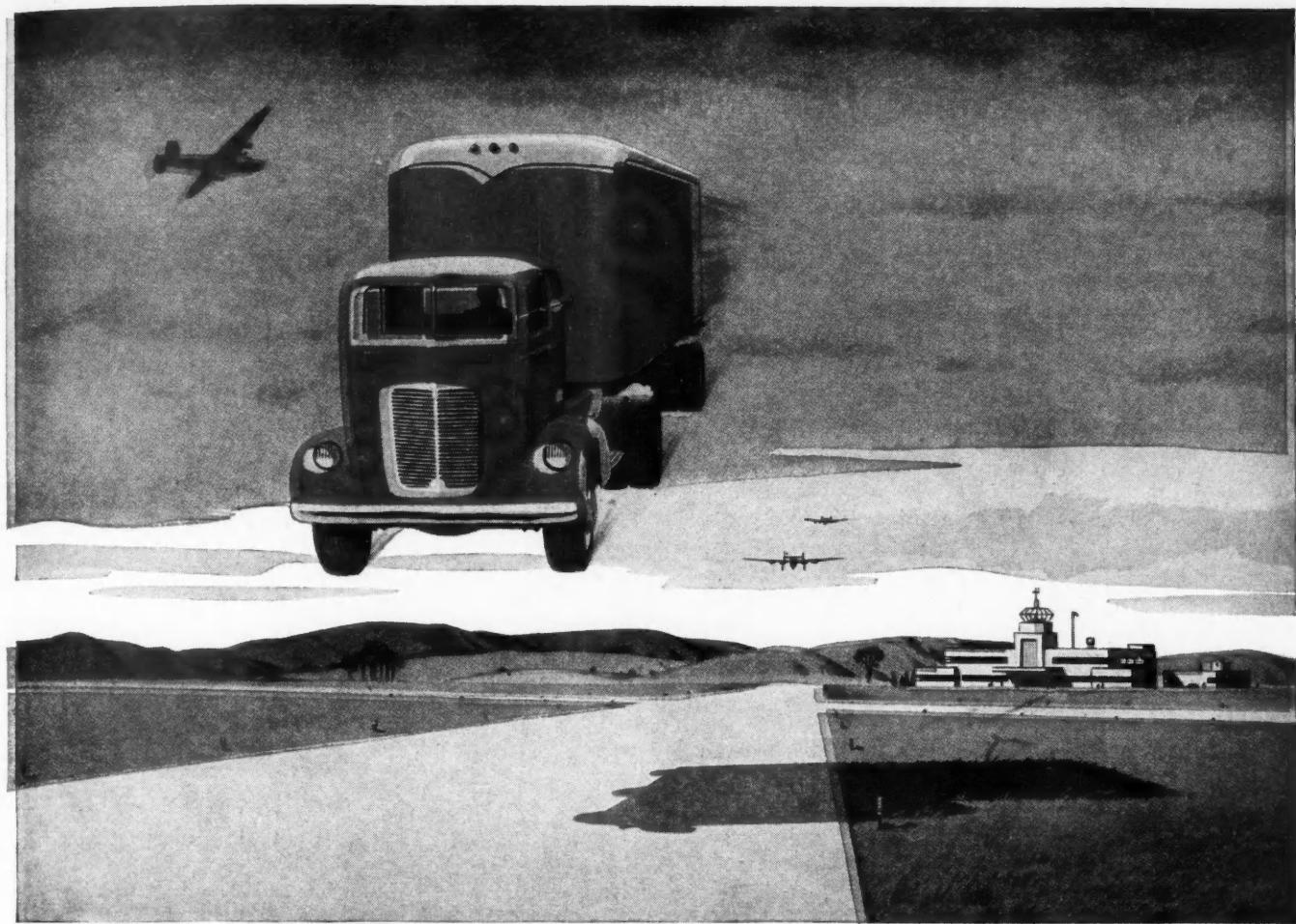


## COUPLINGS for Accessory Drives by MORSE

Specially designed rubber trunnion biscuits in Morflex Couplings for accessory drives automatically compensate for several degrees of misalignment without loss of power. Absorb torque and isolate vibration, too, reduce bearing wear, maintenance and replacement. No lubrication needed, no protection from water, dirt.

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A Borg-Warner Industry

**MORSE COUPLINGS and  
DRIVE SHAFTS**



## Bomber brakes will stop your truck

... FASTER, SMOOTHER, SAFER

★ Brake materials that stop a 60-ton bomber at ninety miles an hour—incorporated now in Raybestos PG Truck Sets and Brake Blocks.

Raybestos developed the sensational "1492" block for America's planes-of-war . . . and, with it, uncovered materials and processes that will make automotive brake history. Many of these allied dis-

coveries are already working for you—giving you safe, smooth stops at instant command, giving you *full-range* brake control under all driving conditions. Soon you'll have the *full power* of this remarkable bomber block for your trucks.

THE RAYBESTOS DIVISION of Raybestos-Manhattan, Inc.  
Bridgeport, Connecticut



BRAKE LINING, BRAKE BLOCKS, CLUTCH FACINGS, FAN BELTS, HOSE FOR CARS, TRUCKS, BUSES AND TRACTORS

JANUARY, 1946

Use postage-paid card inserted in this issue at page 59, for free information on advertised products

233

# Fleet's Tire Program...

(Continued from Page 41)

*Corner of vulcanizing department. Mounted tire at left is being cured on a spot plate. Gene Heisler, vulcanizer, is changing an unmounted tire on center spot plate*

can be run as high as an average of 102,000 miles, if they are properly serviced and reconditioned.

When the war broke out and it became necessary to use war tires, he was very much alarmed at first over reports from tire manufacturers. The aforementioned peak average of 102,000 miles per discarded carcass was reached in 1942 after a climb from 30,000 miles, which was the average at the time Consolidated's tire program was inaugurated. Practically all of the 2800 tires discarded in 1942 were of prewar construction and were recapped an average of 2.2 recaps per casing.

In 1943, with approximately the same mileage run, the trend started downward with more AB and AA war tires being put out of service. The company discarded 3700 tires with an average mileage of 75,000 miles per carcass with 2.4 recaps per tire in 1943 and 3800 tires in 1944 with an average of 70,000 miles per carcass with an average of 2.6 recaps per tire. In the first three months of 1945, there were 650 tires discarded with an average of 68,000 miles per carcass and recaps averaging 2.7 per tire.

## Tire Department Subdivided

**WE HAVE** maintained an over-all tire program and have systematized the maintenance of our tires in such a way that it includes both servicing and reconditioning," said Mr. Kupp. "Our tire department at Consolidated Freightways consists of the three inner departments: 1. Service, 2. Reconditioning, 3. Accounting or the keeping of records.

Our tires are given service at all of our shops in Portland, Seattle, Spokane, Oakland, Boise, Salt Lake



City, Billings and Minneapolis. We also operate two reconditioned plants. One is here in Seattle that handles the far western states and the other at Billings, Mont. that takes care of Montana and the eastern divisions. The Seattle unit operates four recap tables and two sectional molds while the one in Billings has three recap tables and two sectional molds. Both of these big shops are fully equipped to handle all reconditioning with spreaders, drills and buffing lathes and various modern equipment. Our plants have a capacity of 60 recaps and 30 sectional repairs daily during a 24-hour period."

The tires are given a complete service each time that the equipment is at its home shop and an inspection at any company shop that it may touch. The company has found it necessary to do this during the past three years as the units have been subjected to strenuous wartime operation, and have frequently rolled night and day on the long distance schedules.

**Marks Identify Type of Service**  
**T**HE tire department maintains a system of grooved lines under the brand number that indicates the con-

dition of the repaired tire so that it can be placed properly to obtain the maximum service. Tires on which no grooved line appears under the brand number are perfect carcasses and should be used on drive wheels.

Tires on which one groove line appears under the brand number should be used on trailers and six-wheeler drive wheels, while those with two grooved lines should be used on the last two axles of six-wheel trailers.

According to the company code, tires branded RO indicate that they must be worn out and not removed for further repair or recaps. Tires of this class are to be used on the last two axles of six-wheel trailers only.

**Synthetics' Mileage in Line**  
**A** TRUE picture of Consolidated's synthetic tire mileage cannot be given at this time, Mr. Kupp explains, as it normally takes a little over a year for the tires to go out of service. The average mileage has been holding its own in view of the fact that discarded synthetic tires are increasing each month.

They do not anticipate nearly as much decrease in mileage in the

(TURN TO PAGE 238, PLEASE)



New "Frame" Development Eliminates  
Damaging Stress-concentrations—  
**DISTRIBUTES STRAIN THROUGHOUT  
THE ENTIRE TRAILER STRUCTURE!**

Trailers with a light-weight under-construction are now fully as strong as those of the old "full frame" design. They are the new-type Trailmobiles, with a unique frame-and-bolster arrangement, developed by ELECTRONIC Stress-measurement.

We have strengthened every bolster, as indicated by our exclusive technique of ELECTRONIC stress-determination. And, also by ELECTRONICS, placed every one correctly. Then every bolster is welded to big posts in the sides. And the *entire* Trailmobile becomes **ONE INTEGRAL, LOAD-CARRYING UNIT!**

Then no single bolster, or few bolsters, ever "take it" alone. Instead, "distributing beams" disperse—distribute—spread

all load-stress concentrations throughout *many* bolsters—*throughout the entire trailer!*

So, every element in a Trailmobile contributes its *own full support to the load!*—permitting unusual lightness of weight, yet with *enduring strength beyond* that of trailers with even tremendous old-style frames. Hundreds of operators have already

found this to be true. It is one of the *many* features that make the Trailmobile a trailer you're glad to own.

"Check in" at your near-by Trailmobile Branch—and do it soon! You will be surprised, and pleased, and very welcome.

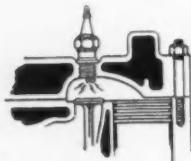
•  
**THE TRAILMOBILE COMPANY**  
Cincinnati 9, Ohio



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COMPANY

# Tips on Tightening Nuts and Bolts

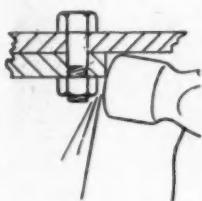
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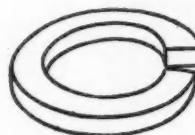
Bolts or studs subjected to considerable tension are frequently made of alloy steel or heat treated to cut down stretch or elongation.



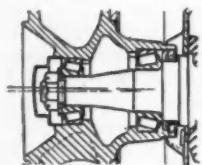
The castle nut and cotter pin is used as a rule only where maximum security is essential because of the greater cost as compared to other locking devices.



Bolts subject to shear must be fairly large and thick and may be case-hardened where shearing tendency is heavy.



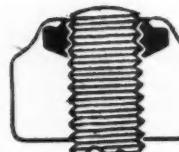
Lock washers may be used under plain nuts in locations not subject to vibration or twist. New ones should be used each time.



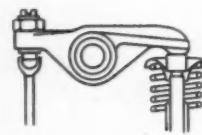
Nuts subjected to twisting or turning motion must be adjusted closely and locked for proper security against loosening.



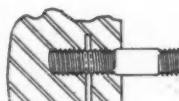
Split nuts, slotted part way across one side and hammered down to jam the threads after tightening, are used at less critical points.



Elastic stop nuts are made with an inner ring of plastic material near the top, which grips the thread like a vise and holds firmly enough to prevent loosening. They may be removed with a wrench and used again. Used for locking where shear, vibration or tension are encountered.



Threaded connections subject principally to motion or vibration must be tightened and locked securely to avoid loosening.



Studs are locked by driving a pin into a hole drilled through the metal in which the stud is set and into the stud itself.



Lip washers are used under plain nuts, or between two plain nuts, where there is a flat surface between the nut and the washer.

dirt, worn or damaged threads, will affect the amount of pull required to tighten a nut. Part of the pull may be used to overcome such thread resistance, so that the net pull will be less than the torque wrench indicates. A bit of dirt in the bottom of the cap

screw hole will have the same effect. A new cap screw, stud or nut may offer more resistance than an old one. The best way to avoid these troubles is to make sure that all threads and cap screw holes are clean, and that all nuts or cap screws show about equal

resistance when run down by hand.

## Measuring Elongation

THE third method of determining tightness is by measuring the elongation or stretch of the bolt or stud with a micrometer after the nut is tightened. This method is used with heat treated bolts or studs. Tests have shown that the nut is "tight" when the bolt or stud is stretched .0003 in. for every inch of its length. Any stretch between .002 and .004 in. per inch of bolt is close enough for practical purposes. Measuring the stretch of the stud or bolt after it is tight eliminates any slight differences in thread tightness between two or more bolts.

The fourth method of determining tightness is used principally on bearing adjustments, and of course, varies with the type, size and purpose of the bearing. In some cases "free running with no perceptible shake or end play" is specified. In others, a definite amount of end play is obtained by inserting or removing shims of required thickness after the bearing has been tightened just enough to eliminate all end play. Some other bearings require a specified preloading which may be determined either by inserting or removing shims after end play has been eliminated, or by measuring the inch-pounds of torque or pull required to turn the gear or shaft supported by the bearing. In all cases, the method and measurements specified by the manufacturer should be followed.

In adjusting front wheel bearings, it is permissible to "back off" the nut a fraction of a turn to line up the cotter pin hole, if tightening to the next notch in the nut would make the bearing too tight. The slight difference in end play or shake is not serious.

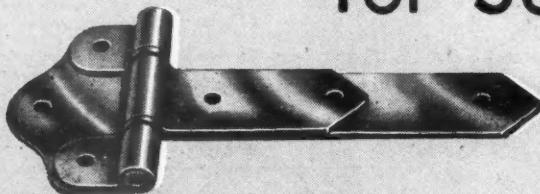
With this one exception, however, the rule is "never back off a castle nut after it has been properly tightened to line up the cotter pin hole." Always tighten the nut further, until the next hole or notch can be used. The slightest loosening of a nut, after it has been properly tightened, will rapidly cause further looseness.

(TURN TO PAGE 242, PLEASE)

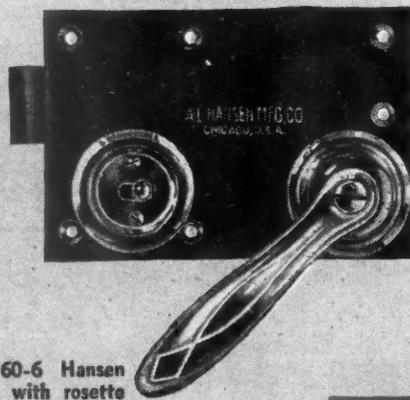
# INTERNATIONAL TRUCKS



fitted with **HANSEN HARDWARE**  
for Safety and Service



Leaf-type Hinge. Made in two- and three-ply. Sizes 8", 12", 16" and 20" lengths. All-steel construction. Hardened steel thrust bearings.



No. 60-6 Hansen Lock, with rosette and inside handle, for operation with key from outside. Special type of spring. Size 4" wide, 6" long, 1 1/4" striker bolt. Die-formed steel bushing. Locking device. Wt., 1 1/2 lbs.

FOR many years Brinks' Express armored cars have been fitted with Hansen Hardware. Safe deliveries of merchandise, money or other valuables, require special types of locks especially designed to give maximum protection. On their armored delivery car pictured, Brinks uses Hansen No. 60-6 Lock and Leaf-Type All-Steel Hinges.

Lock is fitted with a special spring suitable for operation with a key from the outside. Elimination of outside handle and use of key for locking and unlocking from exterior provide added safety. Leaf-type All-Steel Hinges used are strongest where greatest strength is required. Used in combination with Hansen Locks, these Hinges make an attractive job, assure safety and give long, dependable service.

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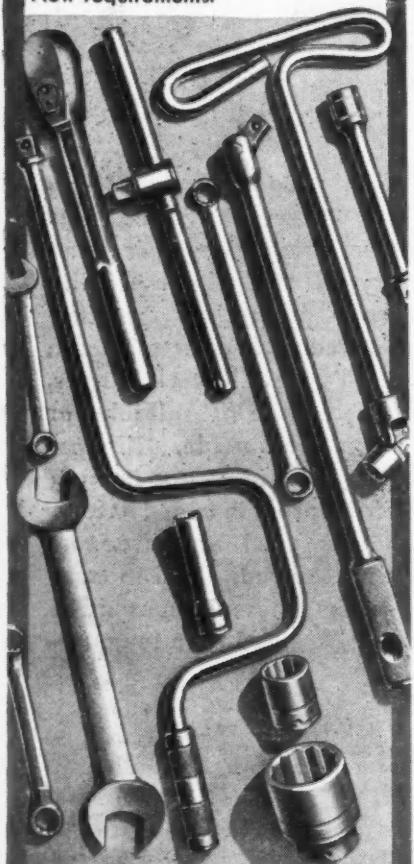




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**STEVENS WALDEN, INC.**  
468 SHREWSBURY STREET  
WORCESTER, MASSACHUSETTS

## FLEET'S TIRE PROGRAM

(CONTINUED FROM PAGE 234)

change from war tires to synthetic as that in the change from prewar to war tires. This is particularly true as long as the tire companies can maintain the present ratio of crude rubber in the manufacture of large truck tires.

As time has gone on, however, Mr. Kupp has seen that the results were not going to be as bad as he feared. This was due to the fact that he used the proper maintenance program.

### 70% Mileage on Recaps

UPON being interviewed in his Seattle office, Mr. Kupp said, "We take special care of our tires and give them prompt and thorough repairs in order to keep them in excellent condition so that they can be recapped. In the period previous to the war, we have given our rubber tires preventive maintenance and daily service. We have continued it under present conditions and keep our equipment rolling. Seventy per cent of our mileage is run on recapped tires."

Mr. Kupp also maintains that the inferior quality of AB and AA tires causes a waste of rubber as compared with prewar tires as far as this company's operations are concerned. "The economy of tire conservation has been thoroughly proved to us through our 12 years of practice and we are striving harder than ever to maintain our tires. In spite of this we have been fighting a losing battle caused by an inferior quality of rubber and an increased cost."

### Causes of Low Mileage

HE THEN went on to give four of the principal causes of reduced mileage with tires made of war construction and synthetic rubber. They are as follows:

"1. More lightly constructed carcass bodies which are more susceptible to rock cuts, particularly in regions that have a considerable amount of rain and wet weather.

"2. Lighter and inferior cushion stock between tread and carcass

(TURN TO PAGE 240, PLEASE)

# VELVAC

POWER SINCE  
BRAKES 1930

Better Built  
for Better Service  
REPRESENTED  
THROUGHOUT U. S. AND CANADA

VELVAC, INC. - DETROIT 16, MICH.

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It Costs No More for Trucks Specially  
Built to Fit Your Needs. Have Our Engi-  
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**COMPRESSOR**  
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## De Vilbiss

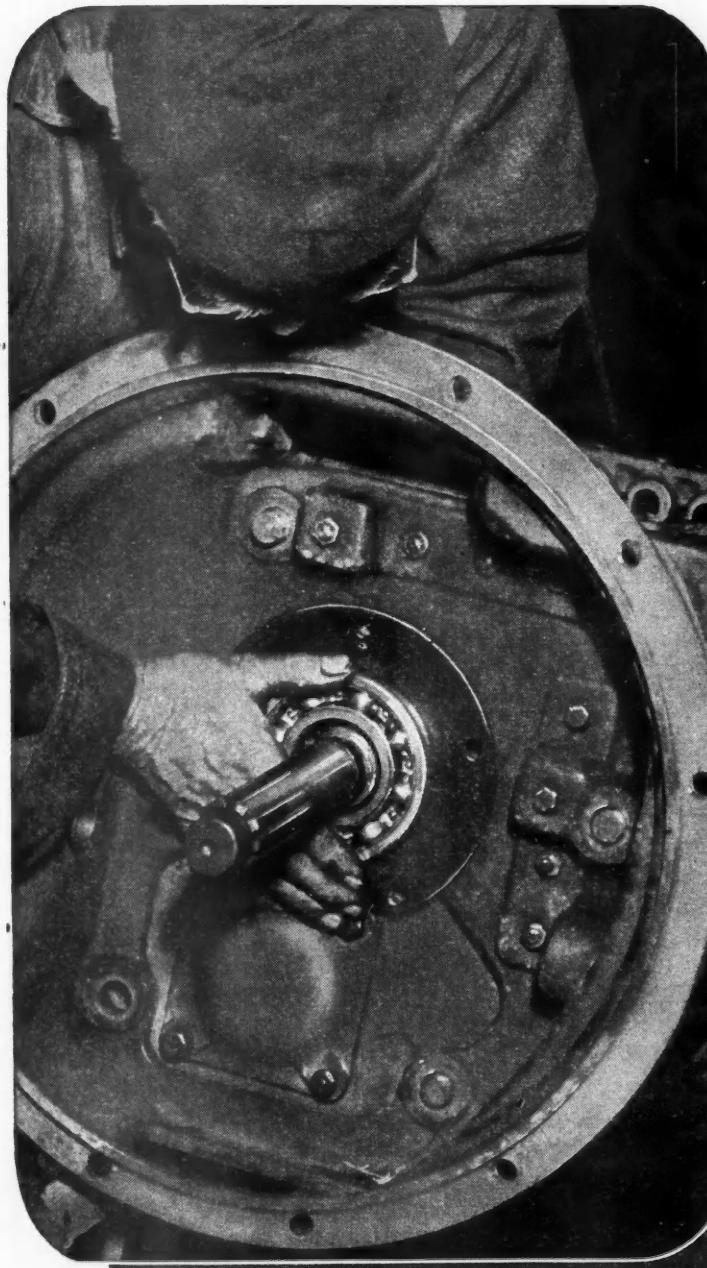
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# Down COME FLEET COSTS

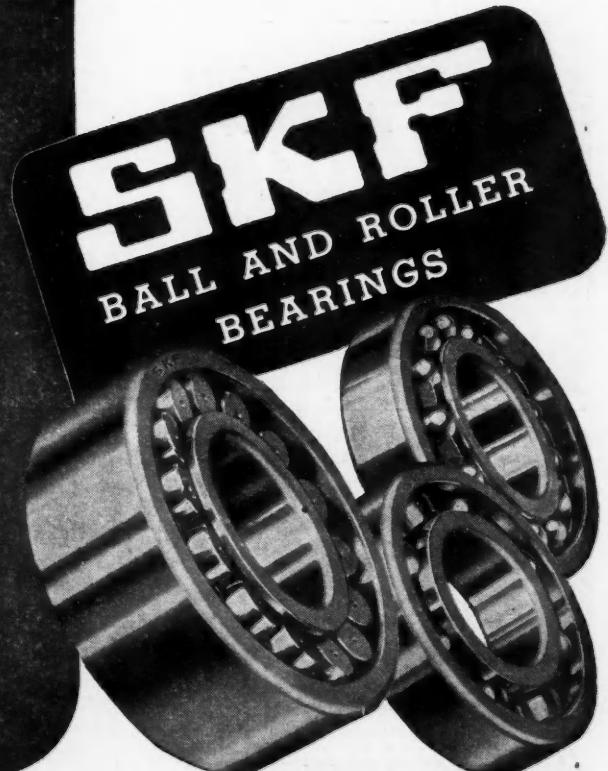
## WITH **SKF** BALL BEARINGS!

• Installing an **SKF** Bearing in Highway Express shop



Many a fleet operator escapes paying high fleet costs by regularly checking his equipment—particularly the bearings. He learned long ago that replacing with **SKF** Bearings is a short cut to low maintenance costs, maintained schedules, and profits by the mile. And he sees to it that **SKF** Bearings are kept dirt-free . . . installed properly . . . lubricated according to manufacturer's recommendations. Correctly installed and lubricated, an **SKF** is the right answer to your bearing problems anytime. 5944

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## Speed-up Schedules

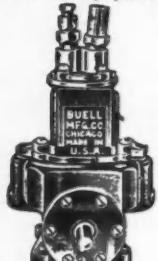
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**BUELL HIGH PRESSURE AIR HORNS**  
reduce maintenance costs by decreasing unnecessary stops, starts and slow downs. This also means less wear and tear on equipment with lower gas and oil consumption. Write for complete details now.

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Powerful, reliable and economical in use, here is a precision built compressor that will give long service without frequent parts replacement. We specialize in the manufacture of small, high speed compressors of the highest quality. Write for literature.



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- Instant Starting
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- Added Protection

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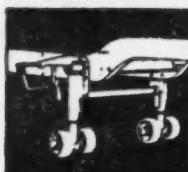
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CORPORATION LANSING MICHIGAN

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Full Spark PLUGS



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Consult our Engineers

**HUNTER AND COMPANY**  
1560 East 17th Street,  
CLEVELAND 14, OHIO

## FLEET'S TIRE PROGRAM

(CONTINUED FROM PAGE 238)

which subjects it to more cuts, impacts and injuries.

"3. Inferior cushion stocks in cord body proper, lessening the success of repairs.

"4. Lighter treads and base rubber under the skid design."

These factors have given him trouble during the past few years, but he is trying to overcome these handicaps by giving the tires more thorough service and more careful attention at every stage of the process. Now that the war is over many of these trying problems will adjust themselves.

As part of the tire maintenance system, the company has found it helpful to furnish a complete set of job breakdown sheets for the instruction of its new employees. Every operation has been worked out for thoroughness and maximum efficiency. Naturally, the older employees follow the same procedure. Due to space limitations, these data will be published in an early issue of COMMERCIAL CAR JOURNAL.

END

(Please resume your reading on P. 42)



**Whiz**  
**MOTOR RYTHM**  
an effective  
chemical tune-up

**MOTOR RYTHM**

A PRODUCT OF **Hollingshead**  
LEADER IN MAINTENANCE CHEMICAL

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**EDISON** is a great name in electricity. Edison Laboratories keep it great by research and development . . . guaranteeing a quality plug with performance as great as the name. Edison's "SPUN-ON" Leakproof Gasket, for instance, is the only design that insures a 100% compression-tight connection between spark plug and engine-block . . . and only Edison has it!

**FLEET-OWNERS:** Without cost or obligation to you, you can use Edison-Splitdorf's *Transportation Service Department* to make complete surveys of fleet units; studies of specialized ignition requirements; and instruction of mechanics in correct spark plug application for conditions of motor, load, and operation. Write for full information.

*See your Edison jobber for spark plugs . . . and other quality products.*

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**SELF-CLOSING MONKEY LINK**

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**TIRE CHAIN MAINTENANCE  
A MUST in good Truck Fleet Operation**

Your trucks have a greater value to you today than ever. Don't risk their loss through the lack of proper inspection and repair of your tire chains. This is the time to do it. Fore-handed and economically minded operators are now checking their stocks of

**MONKEY LINKS**

Keep MONKEY LINKS in your shop and on your trucks — No tools required; your drivers can fix a break immediately. Now is the time to order your winter's supply of MONKEY LINKS—Order them today.

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Improved ventilation for cool operation, longer life and greater efficiency. They stand the strain of peak loads.

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**HEAVY DUTY MOTOR TRUCKS**

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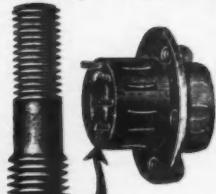
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STUDS**

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**TIPS ON TIGHTENING**

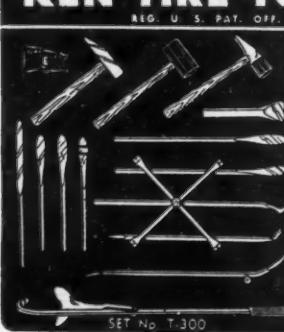
(CONTINUED FROM PAGE 236)

Equal tightness of nuts in a pair or series is often vitally important. Main and connecting rod bearing bolt, and cylinder head studs are good illustrations. Even a slight difference in the tightness of nuts at these points may result in a burned out bearing, a cracked cylinder head or rapid wear of axle gears. All important "series" nuts must, therefore, be tightened to exactly the same limit (as specified by the vehicle or unit manufacturer) and the tightness should be determined accurately with a torque wrench or by measuring bolt stretch with a micrometer.

**Threads Affect Fit, Tightness**

THREAD sizes, either U. S. standard or S.A.E. are not always identical. Take a 1/2-in.—20 S.A.E. thread on a stud for instance. On the inner end the thread is often cut to the large limit, to insure a tight fit in the body metal where the stud is installed more or less permanently. The thread on the outer end of the same stud may be cut to standard or slightly under standard size, to permit easy removal and replacement of the unit.

(TURN TO PAGE 244, PLEASE)

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REG. U. S. PAT. OFF.  
LEAD THE  
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\* ADVANCED  
DESIGN  
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SEE YOUR LOCAL  
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BIMETALLIC FRICTION MATERIAL  
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**CLUTCHES AND BRAKES**  
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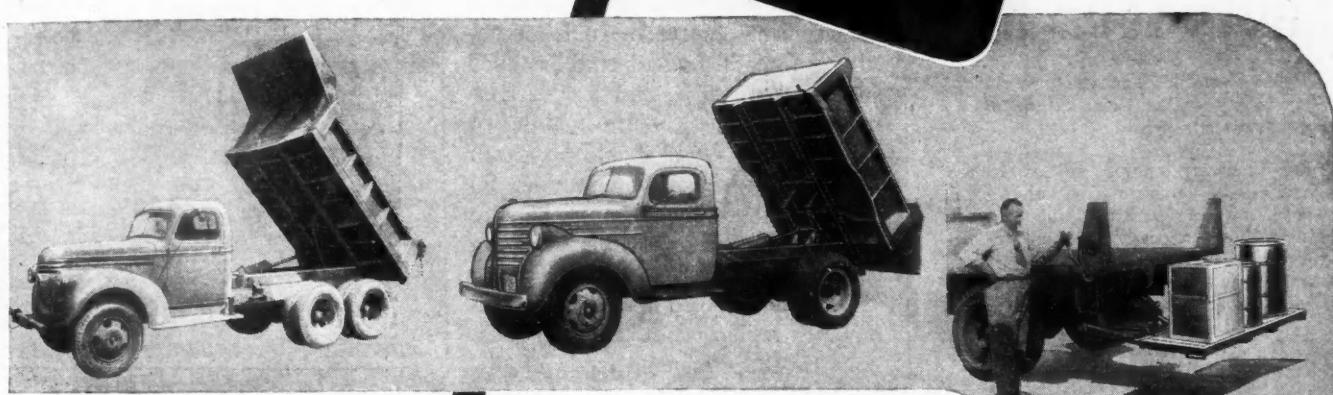


Write for catalog 38AC and 38BC with discount to truck dealers.  
CARL H. FRINK, Mfr., CLAYTON, 1000 Is., N. Y.  
DAVENPORT-BESLER CORP., DAVENPORT, IOWA  
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CONSTRUCTION  
EQUIPMENT  
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THE MOVE

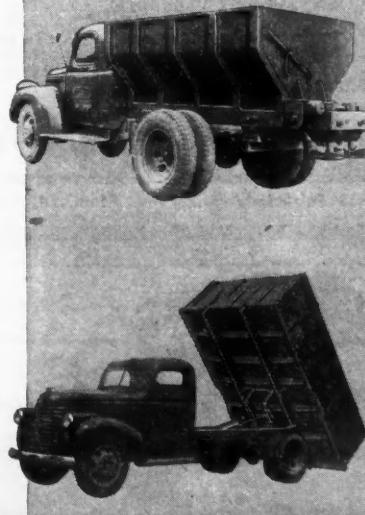


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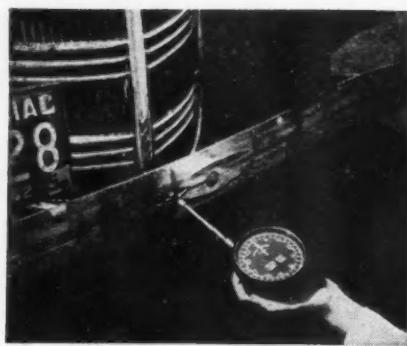
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- + ADD SAFETY, CAPACITY, DURABILITY
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For checking engine speeds from crankshaft, generators, or other exposed rotating parts; trouble shooting without necessity of road tests. A wide variety of ranges—light weight and heavy duty; guaranteed calibration. Complete in carrying case with all accessories—\$35.00 FOB Factory. Long Extension Arms available at slight additional cost for speed checks thru radiator grille.

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Check the wire on every job

Wirey Joe

AUTOMOTIVE CABLE  
manufactured by  
THE CRESCENT COMPANY, Inc.  
Pawtucket, Rhode Island

### TIPS ON TIGHTENING

(CONTINUED FROM PAGE 242)

Usually there is enough difference between the two ends of the stud to make it easy to install correctly. Cap screw and bolt threads may be held to either high or low limits for similar reasons.

When replacing any threaded parts at important points, therefore, it is important to use exactly the same size replacement part as the old one. A "loose thread" bolt or stud installed in the wrong place may give a false effect of tightness before it is drawn down as tight as it should be, again resulting in premature loosening. So whenever there is any doubt, be sure to use the same part number for a replacement.

Another reason for special care in making replacements is that some bolts or studs may be made of different alloy steels, or heat-treated in one way for resistance to stretch, and in another way for resistance to vibration or shear.

Body fit of a bolt or cap screw, and length of thread, are likewise important in many applications. Where a bolt is subject to shear or vibration, the body or untreated portion must be a close fit in the hole throughout

(TURN TO PAGE 246, PLEASE)

## NOT JUST YET—BUT SOON—We hope!



VALLEY ELECTRIC CORP.  
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BEFORE

TRAPS LOOSE  
METAL . . .  
LENGTHENS  
TRUCK LIFE . . .

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From the war—a new way to prolong life of truck bearings, gears, and other moving parts.

Above are two pictures which show how the Lisle MAGNETIC Plug traps harmful metal in the oil and grease. Top picture shows a clean plug. Bottom shows the same plug, after 1,000 miles operation.

### STOP ABRASIVE WEAR SAVE PREMATURE BREAKDOWNS

As you know, tiny metal particles are constantly ground off a truck's moving parts and mixed with the oil. If left to circulate, these sharp, rough particles cut and grind away, causing premature wear.

The Lisle MAGNETIC Plug prevents this wear, because a powerful magnet in the plug pulls iron and steel in the transmission, crankcase, and rear axle (in place of ordinary drain or fill plugs). Lisle Plugs retain their magnetic power 10 years and more. Cost little, pay for themselves many times over in longer truck life, fewer breakdowns, lower upkeep. Proven in the war in army trucks, buses, tanks, planes, Lisle plugs are now available for YOUR units.

**FREE**—Send for free sample plug to test in one of your trucks. Tear out this ad, and tell us make and model of truck.

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*Lisle*  
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PROTECT  
YOURSELF  
Against Mildew and Moisture  
Damage... Apply SOLDINE V-110

NOW!



POSITIVE  
WATERPROOFING

A PRODUCT OF  
**SOLDINE**  
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MANUFACTURING, CHEMISTS

Just one tiny hole in a trailer's canvas cover, tail-gate tarp, or open-stake truck-top, and WATER—THE DESTROYER—seeps into valued cargo. From then on Water's offspring—Moisture, Mildew and Rot will discolor, mar, and warp—ofttimes beyond recovery or repair. AVOID claims for lost or damaged goods. SAVE CUSTOMERS!

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Company.....

Address.....

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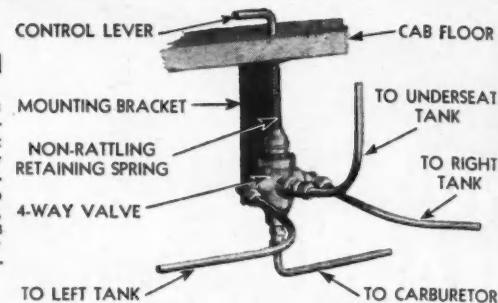
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Nationally by

The TRUCKSTELL CO.

1672 Union Commerce Bidg., CLEVELAND—WRITE FOR LITERATURE AND NAME OF TRUCKSTELL DISTRIBUTOR

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This tank and a Four-Way Multi-Selector Tank Valve (at right) give double safety protection. Valve is controlled from the cab but no gas lines enter it. The tank, approved by Underwriters, is quickly installed without drilling or welding. Has other exclusive features. INVESTIGATE.



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FUEL INJECTION EQUIPMENT

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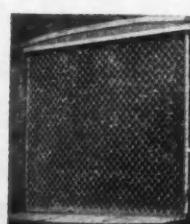
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Reduces maintenance and operating costs . . . results in more engine power, more mileage per gallon, less wear and repair, freedom from carbon formations, sludge, etc. Add to any motor oil.

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Write for details and prices.

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2180 East Hazard Street, Philadelphia 23, Pa.

### TIPS ON TIGHTENING

(CONTINUED FROM PAGE 244)

its length, and the threads must be just long enough to permit the nut to be drawn tight without bottoming on the threads. Close body fit is particularly important in connecting rod cap bolts, main bearing studs and the studs or cap screws holding the driving member of a rear axle in the housing. At these and many similar points the slightest shifting of one part with relation to the other would be certain to cause misalignment and serious damage.

Different methods of cutting threads on bolts, studs and cap screws will affect the body fit, too. When threads are cut with a die, their outside diameter is no greater than the body diameter. Consequently a tight body fit can be obtained when needed.

Sometimes, however, the threads are rolled instead of cut. In this case, because metal is displaced and not removed, half the thread depth is below the body diameter and the other half above, so that the outside thread diameter is slightly greater than the body diameter.

Rolled out threads should never be used, therefore, at any point where a close body fit is required. As with other rules, however, there is an ex-

(TURN TO PAGE 248, PLEASE)

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YOUR TRADEMARK REPRODUCED ANY  
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SKETCHES & DESIGN SUGGESTIONS  
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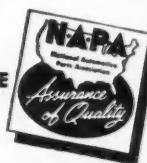


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IT WOULD STILL BE ECONOMICAL  
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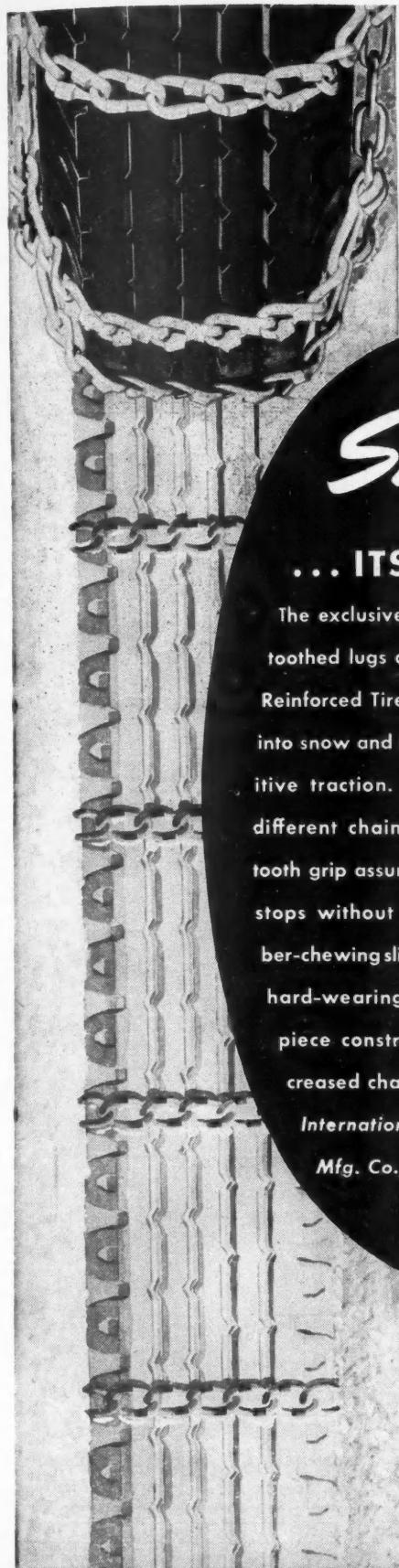
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because they are  
SHATTER PROOF. Made in  
two colors. They have the  
same transparency as other  
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The exclusive, patented\* saw-toothed lugs of Campbell Lug-Reinforced Tire Chains dig right into snow and ice to assure positive traction. These radically different chains with the saw-tooth grip assure safe starts and stops without dangerous, rubber-chewing slip and skid. Tough, hard-wearing steel, and one-piece construction, mean increased chain mileage.

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*Lug-Reinforced*  
TIRE CHAINS

THE CHAIN WITH THE SAW-TOOTH GRIP



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MATERIALS - METHODS - SERVICE - FOR EVERY CLEANING REQUIREMENT

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Tuthill Leaf Springs add a final touch of ruggedness to the truck equipment of WARD-LAFRANCE, AVAILABLE TRUCK, FOUR-WHEEL DRIVE, and many other concerns of like calibre. Some of them have been using TUTHILL for twenty-five years or longer. Strong, resilient, durable—TUTHILL meets the test of service.

We make both standard and special leaf springs. What are your requirements?

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**SPRINGS**



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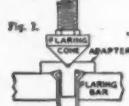
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*Double-Flaring Tool*

... for  
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• Ideal for brake, gas and oil line work. Overcomes tendency of welded steel tubing to crack when flared with ordinary flaring tool. First, tubing is balled, Fig. 1. Then flared in conventional manner, Fig. 2.

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**PYRENE KEEPS 'EM  
ROLLING**

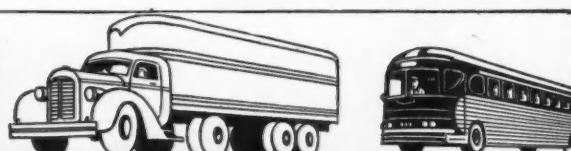
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Handy, speedy Fire  
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The Kathanode Corporation • Chicago, Ill.

**TIPS ON TIGHTENING**

(CONTINUED FROM PAGE 246)

ception in this case. If the body of the bolt is definitely larger in diameter than the threaded end, or if the threads are rolled on a smaller diameter portion of the bolt or stud, then the larger body can be used for a close body fit.

**Six Simple Rules**

**SUMMING** up, these six simple rules, if faithfully observed, will make any mechanic a good "nuts and bolts" man.

1. Always replace worn bolts, nuts, studs and cap screws with new of the same size, type and part number.

2. Use the right type and size of wrench, especially when tightening nuts or cap screws.

3. At all important points (bearing bolts, cylinder head studs, etc.) get exactly the right tightness by measuring with a torque wrench or by "miking" the bolt stretch—don't depend on "feel."

4. Never "back off" a castle nut after it is properly tightened, to line up the cotter pin hole. Always tighten it another notch. (Exception—wheel bearing adjustments where slight play is preferred to excessive tightness.)

5. Always "lock" a lock-type connection securely.

6. Always replace a lock-type bolt or nut with the same type of lock—never with a less secure lock.

**END**

(Please resume your reading on P. 43)

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**TIRES**



**PORTABLE  
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